

TECHNOLOGY

REVIEW *March* 1955

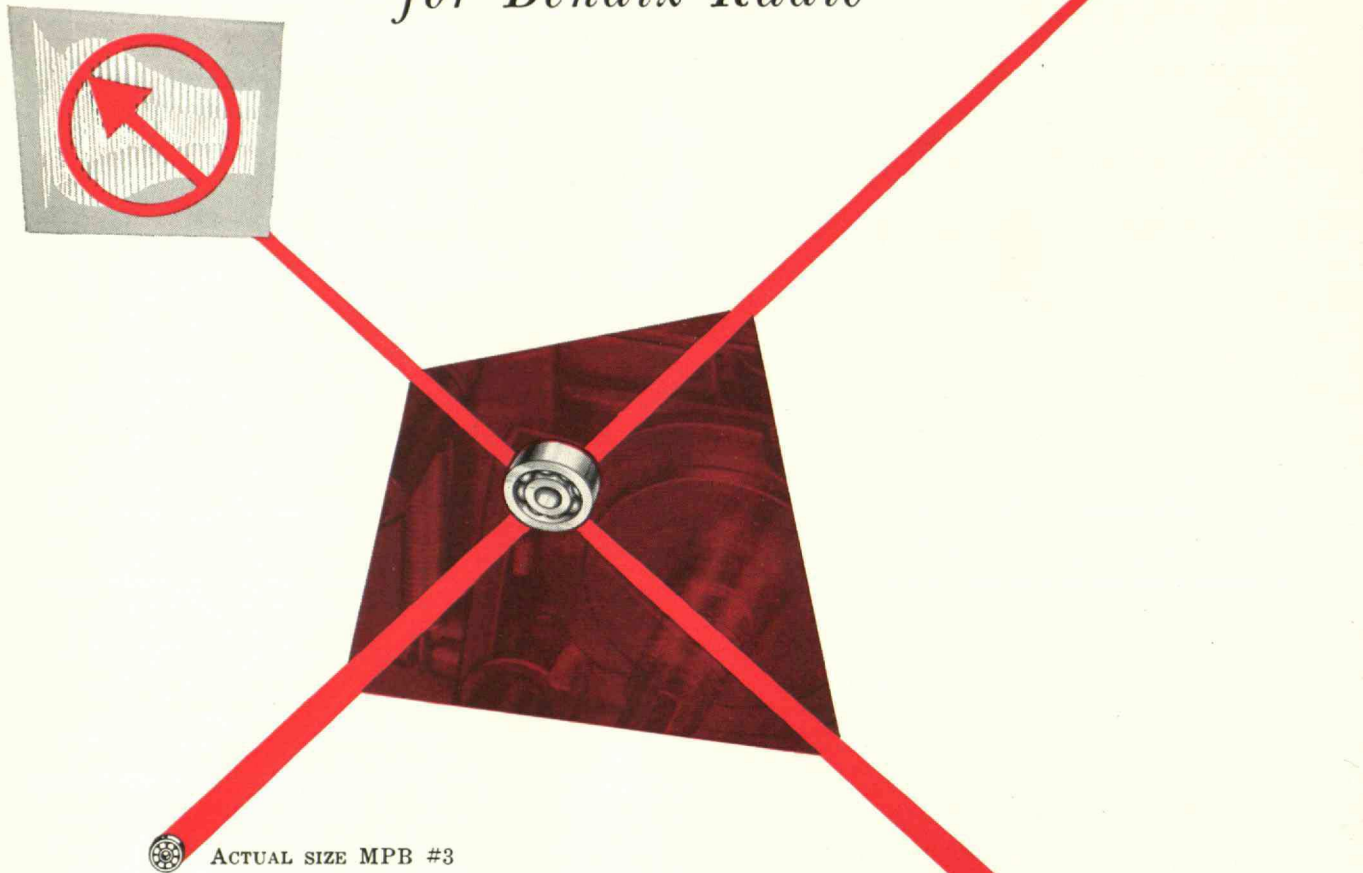


technology review

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HOW MPB bearings solve miniaturization problem for Bendix Radio



ACTUAL SIZE MPB #3

MPB ball bearing used as Index Pawl in miniature frequency selector switch

OPERATING CONDITIONS — miniature ball bearing serves as index pawl in 4-position indexing device . . . bearing travels at 936 r.p.m. CRITICAL — low starting torque, low friction rotation . . . high impact loads . . . long, trouble-free bearing life. RESOLVED — by use of MPB No. 3, .1875" o.d. full-race bearing.

To quote Mr. John F. Wroten, Jr., mechanical engineer with Bendix Radio Division, these are some of the reasons why MPB bearings were selected in the miniaturization of their frequency selector switch: "The low friction rotation of the bearing practically eliminates drag in the indexing action, and reduces to a minimum the amount of power required for disengagement. Also, the bearing displays unusually high resistance to the frequent impact loads a detent stop of this kind must withstand Because rolling contact occurs between the pawl and the plate, the plate can be made of soft stainless steel."

For problems involving miniaturization, consult MPB, pioneer manufacturer of miniature ball bearings.

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LION OIL COMPANY

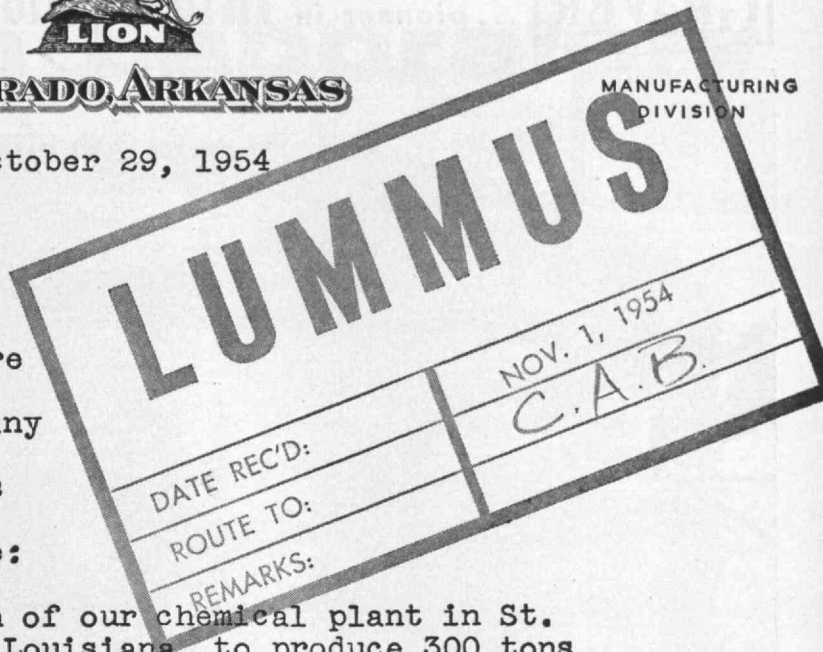


EL DORADO, ARKANSAS

J. B. ROGERSON,
MANAGER OF MANUFACTURING

MANUFACTURING
DIVISION

October 29, 1954



Mr. C. A. Barrere
Vice President
The Lummus Company
2707 Wesleyan
Houston 6, Texas

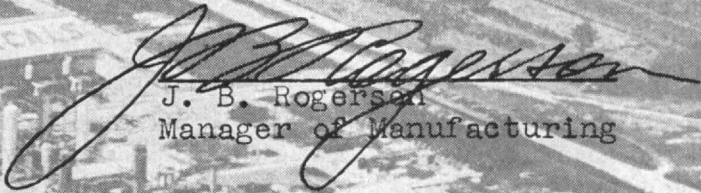
Dear Mr. Barrere:

The construction of our chemical plant in St. Charles Parish, Louisiana, to produce 300 tons per day of ammonia, 450 tons per day of nitric acid, and 550 tons per day of ammonium nitrate pellets was completed by your company June 1, 1954, and was well within labor cost and time allocated to this project.

Please extend our sincere compliments to all of the people in your organization who worked on this project for a job well done.

Yours very truly,

LION OIL COMPANY


J. B. Rogerson
Manager of Manufacturing

JBR:mpd

Illustrated: The Lion Oil Co. chemical plant constructed by Lummus in St. Charles Parish, Louisiana

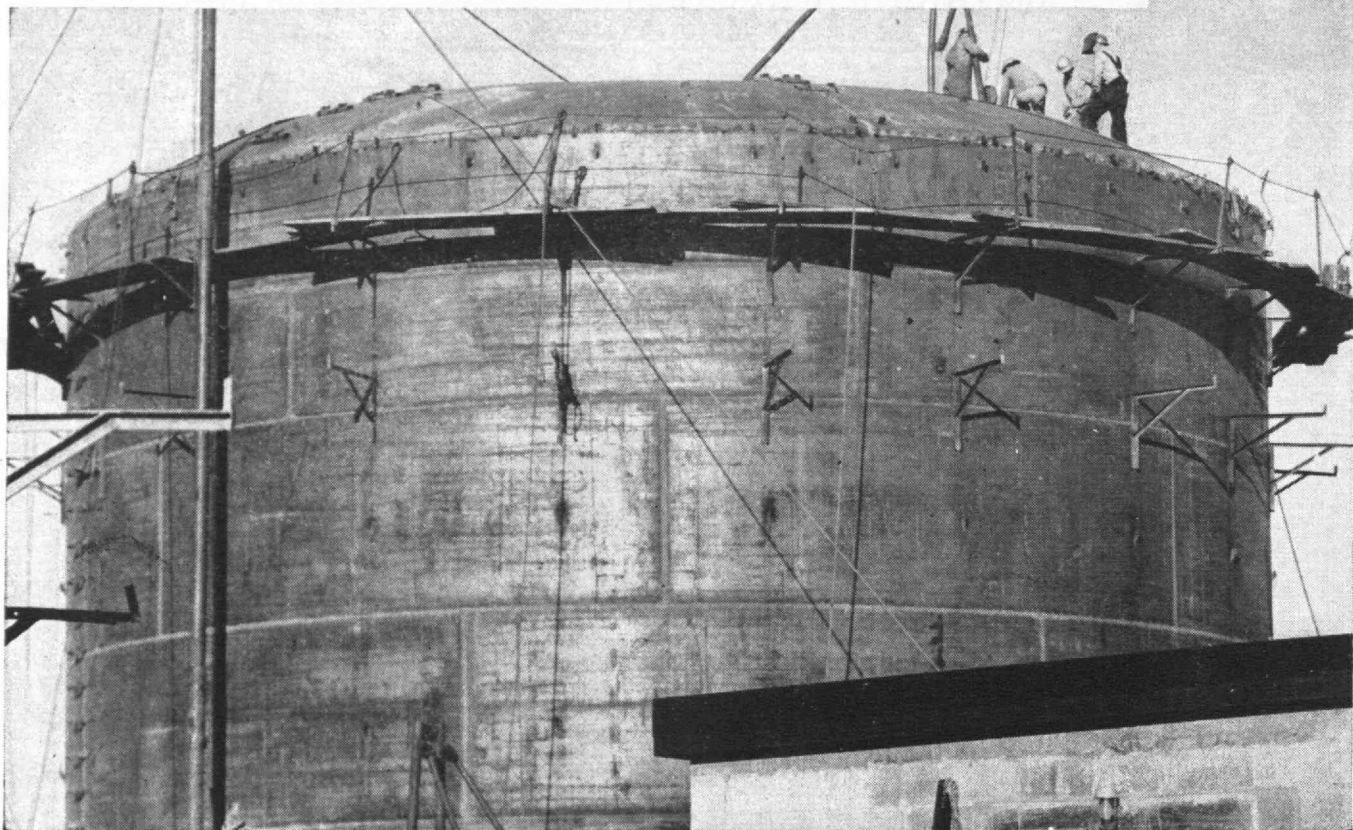
Lummus has recently been awarded the contract to engineer and construct a 60 ton/day anhydrous ammonia plant for Westvaco Chemical Division of Food Machinery and Chemical Corporation.

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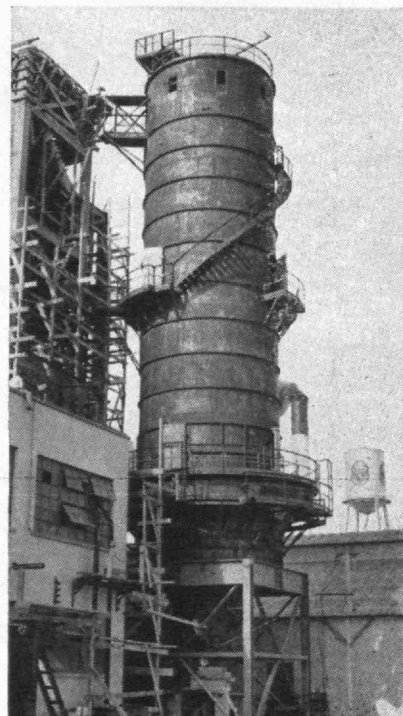
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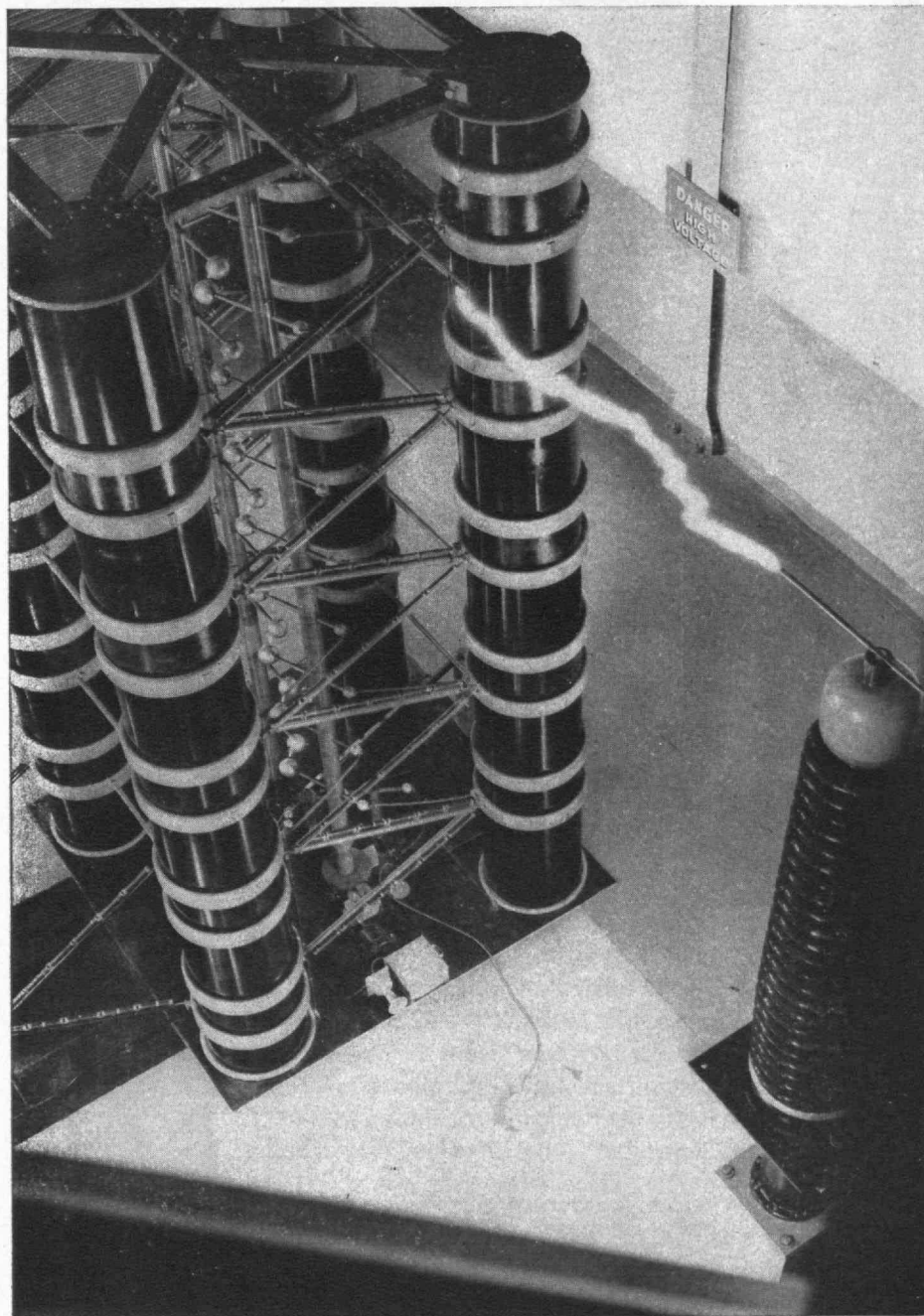
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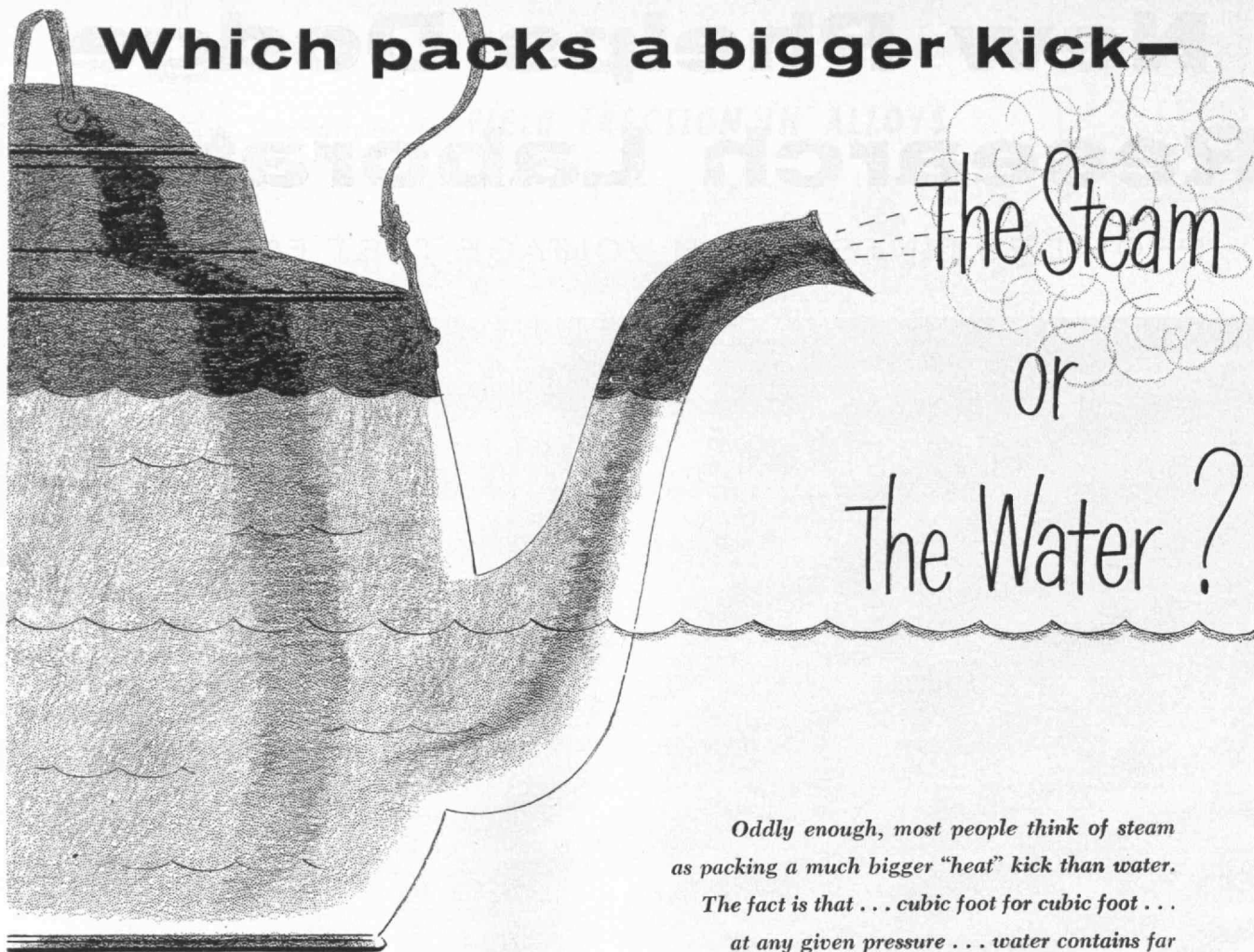
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B-804

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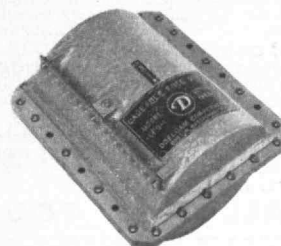
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Write for Bulletin S1



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Write for Bulletin A1



GYROSCOPES—Cageable Free Gyro (shown here), Junior Rate Gyro, K Rate Gyro, Gyro Stable Platforms—used in guided missiles, aircraft flight evaluation systems and bombing and navigational computers.

Write for Bulletins K, JR, and CFG1

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□ **BABA OF KARO** A Woman of the Moslem Hausa by Mary Smith. This remarkable book contains what is probably the first full-scale autobiography of an African woman. Mrs. Smith, who speaks fluent Hausa, became Baba's friend while her husband, Dr. M. G. Smith, a social anthropologist, was engaged in field work in Nigeria. After many conversations between the two women, Baba agreed to dictate the story of her life. Dr. Smith contributes an essay on Hausa life and sociology to provide the background. \$7.50

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□ **ETRUSCAN ART** by P. J. Riis. This book is what might be called a collection of archaeological essays on the art from which Roman art was gradually developed, the art of the Etruscans, also the art of early Rome. The principal aim of the book is to widen the circle of knowledge already established by the university world and modern scholars in this particular field. Bibliographical notes added to the individual chapters will make the book useful to the student as well. The author is Professor of Archaeology at the University of Copenhagen. Illustrated. \$10.00

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THE TABULAR VIEW

Limitations of Logic.—The increased complexity of technology and the need to properly assess the effects of science and engineering on man's life stimulate the need to examine the present status of engineering education. The requisite becomes all the more apparent when it is recognized (as reported on page 80 of the December, 1954, issue of *The Review*) that the nation's colleges and universities will face a bumper crop of students in the next decade or two. One study of engineering education is presented in this issue (page 233) by JOHN B. WILBUR, '26, Head of the Institute's Department of Civil and Sanitary Engineering. Despite the official position of the author, the views expressed by Dr. Wilbur are entirely his personal ones. Professor Wilbur makes an appeal for a "vertical type" of engineering training, in which logic and the informal faculties are developed simultaneously, in contradistinction to the horizontal type of training with "prerequisites." Professor Wilbur received S.B., S.M., and Sc.D. degrees from the Institute in 1926, 1928, and 1933, respectively. After two years in engineering practice, Dr. Wilbur returned to M.I.T. in 1930 as an instructor in Civil Engineering. He was made assistant professor in 1934, associate professor in 1937, and professor in 1943. He became acting head of his Department in 1944, and permanent head in 1946. Professor Wilbur is a member of the American Society of Civil Engineers and of the Boston Society of Civil Engineers. He is a fellow of the American Academy of Arts and Sciences, and an honorary member of Chi Epsilon, the honorary civil engineering fraternity. He is the author of many technical papers and bulletins and, with Professor Walter M. Fife, '21, of a textbook, *Theory of Statically Indeterminate Structures*.

Hold for Future Use.—A few rugged die-hards refuse to see the logic of that tail-chasing, economic shell game which requires our citizens to pay taxes in order that the government can keep agricultural prices up so that taxpayers' foodstuffs cost more than they would without government intervention. The farmers plant, reap, store—

(Concluded on page 224)



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THE TABULAR VIEW

(Concluded from page 222)

and collect; the ordinary citizen faces increased taxation so that the cost of his food can be boosted; and the land becomes exhausted! The land now being overworked — to fill storage bins — will be sorely needed in another decade or two to feed our rapidly expanding population. A plan for conserving land is proposed by MILTON E. PARKER, '23, in "A Bumper Crop of Grass" (page 237). Professor Parker brings to his study a vast background of experience in the food industry. He received the S.B. degree in Industrial Biology from M.I.T. in 1923. He served as research associate at M.I.T. for a year under Samuel C. Prescott, '94 (now Professor of Industrial Biology, Emeritus), as dairy technologist of the Research Laboratories of National Dairy Products Corporation, manager of Beatrice Foods Company, as consulting food engineer, and, since 1948, as head of the Department of Food Engineering at the Illinois Institute of Technology. The stimulation and aid received from a similar article in *Lion Oil News* is acknowledged by Professor Parker.

Attila at the Door. — On every hand, throughout the land, we hear the plea that there should be more engineers, of youthful years, preparing for the next World War. The training of scientists and engineers in the U.S.S.R. has had a meteoric rise since the end of World War II, if numbers of enrolled students is a guide. In the United States, however, the number of college students enrolled in science and engineering has dropped steadily in the past few years. This drop in technical education — with Attila at our front door — is of concern to GEORGE TICHENOR who advocates (page 241) technical education for all it is worth. Mr. Tichenor believes that enrollment in science and engineering can be increased, but that we need to recognize that "science offers not only frontiers to be explored, but also the virginal beauty of a poem read for the first time." It will be surprising if Mr. Tichenor's thesis does not raise a few eyebrows — especially in liberal arts educational circles — but a good purpose will have been served if his views provoke others to recognize the nation's current educational needs. Since 1923 Mr. Tichenor has had a varied career as newspaper reporter and writer, editor, novelist, teacher, ghost writer, promotion director, and public relations adviser.

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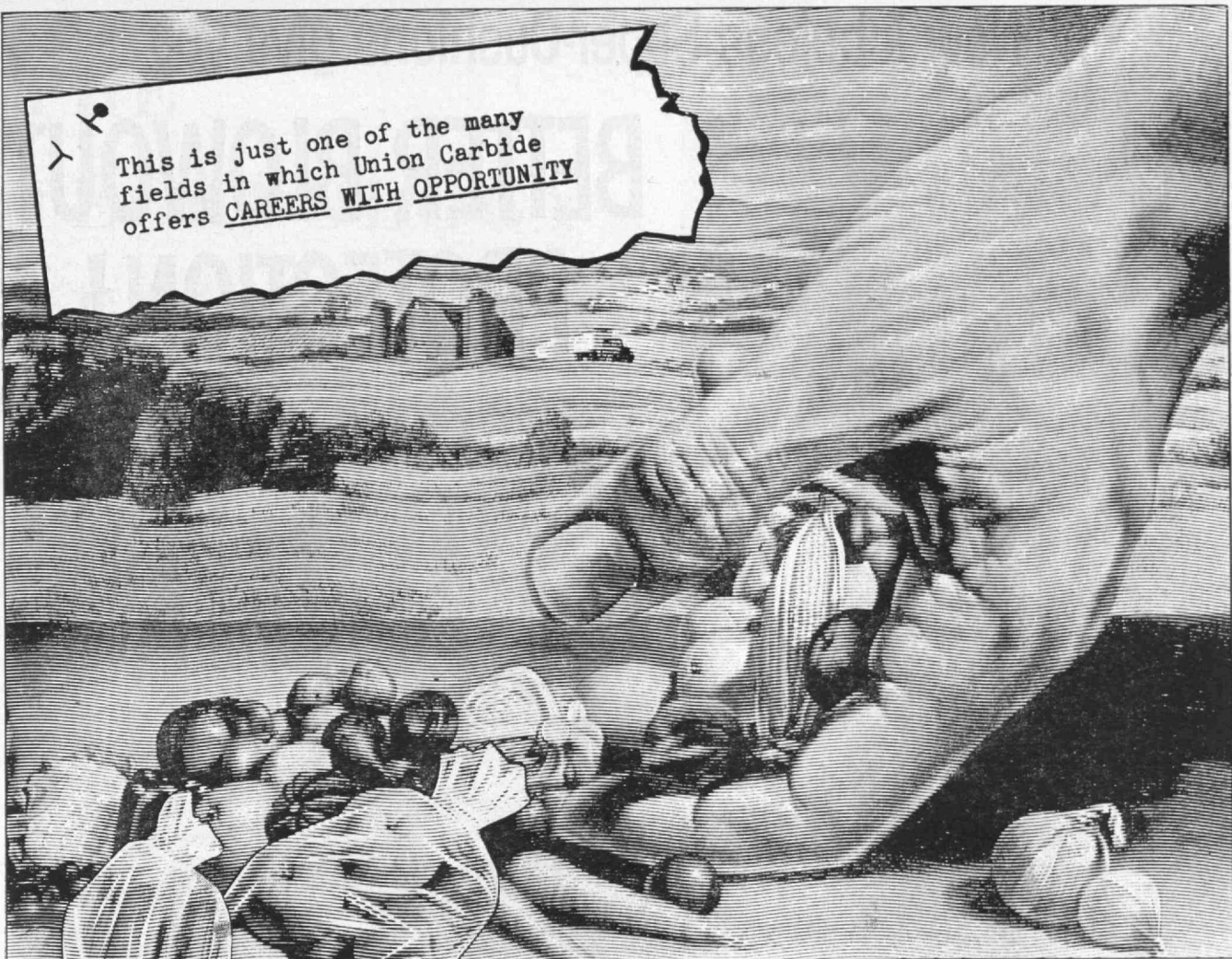
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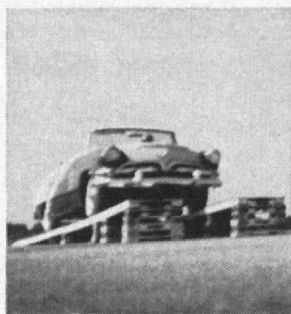
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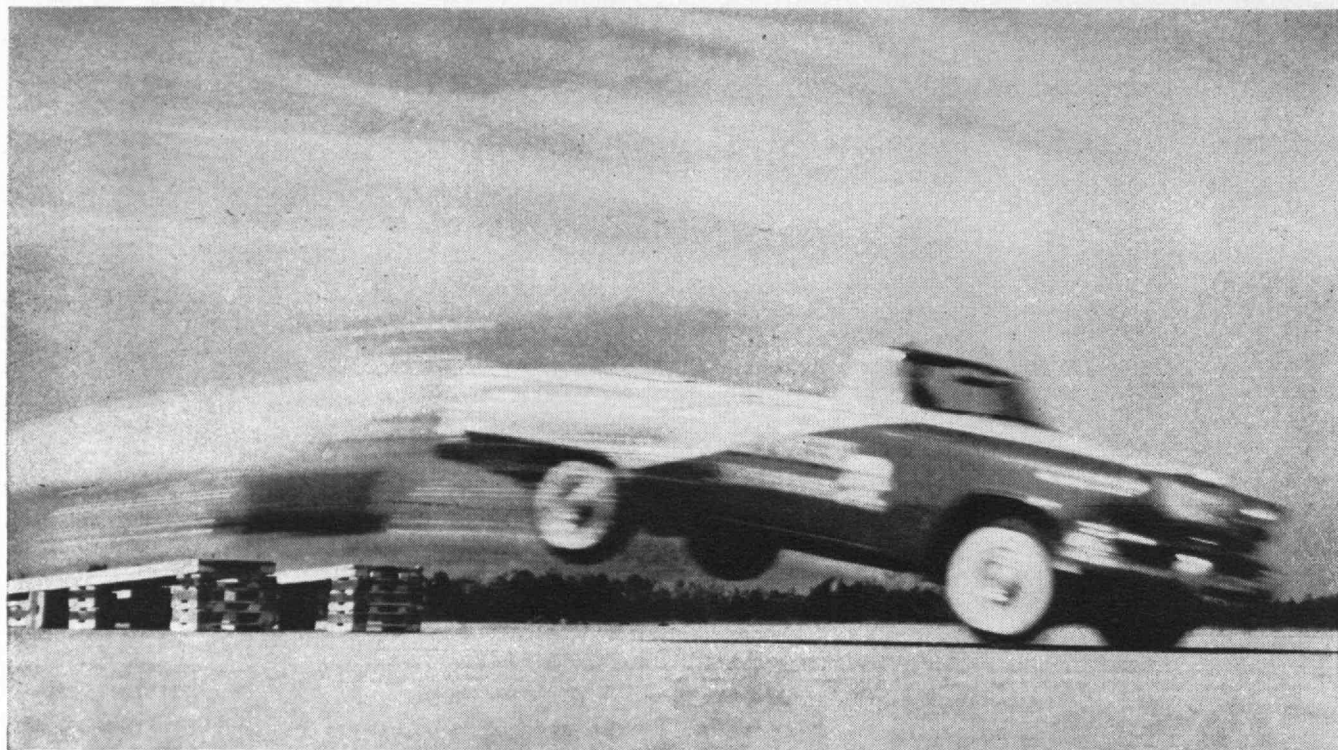
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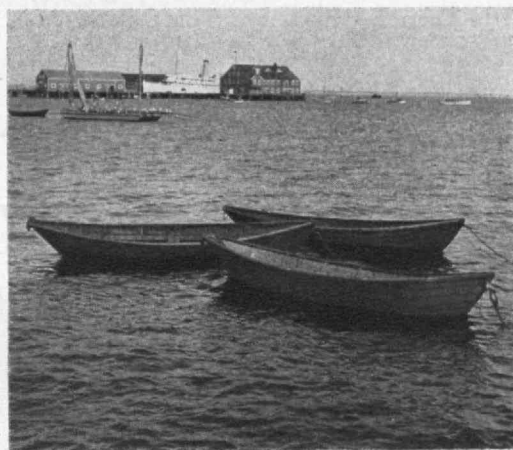
THE TECHNOLOGY REVIEW

THE TECHNOLOGY REVIEW

TITLE REGISTERED, U. S. PATENT OFFICE

EDITED AT

THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY



Frederic W. Nordsiek

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MADELINE R. MCCORMICK

Publisher:

H. E. LOBDELL

VOL. 57, NO. 5

MARCH, 1955

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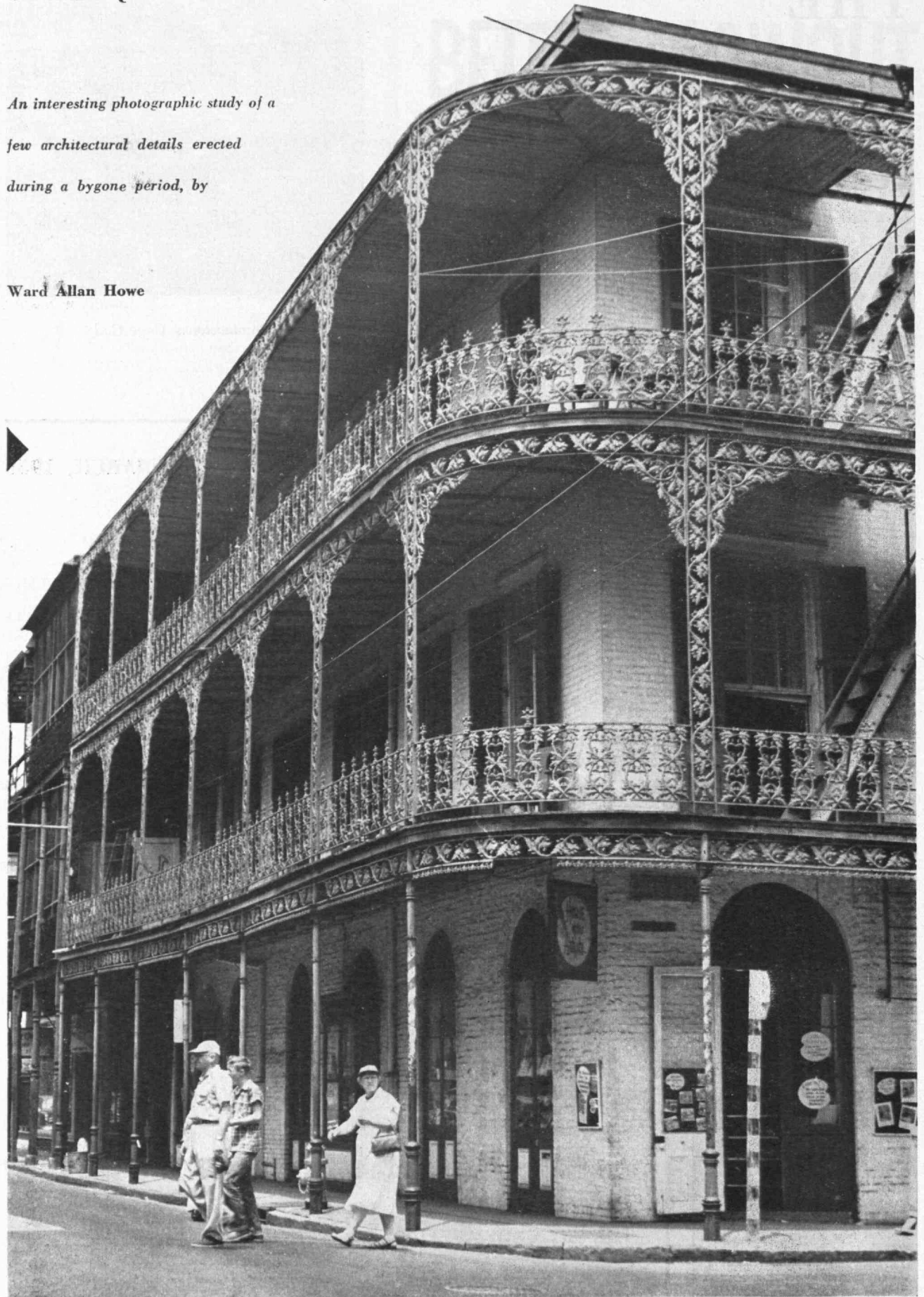
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Published monthly from November to July inclusive on the twenty-seventh of the month preceding the date of issue, at 60 cents a copy. Annual subscription, \$4.00; Canadian and foreign subscription, \$4.50. Published for the Alumni Association of the M.I.T.: Hugh S. Ferguson, President; H. E. Lobdell, Executive Vice-president; Richard S. Morse, Gilbert M. Roddy, Vice-presidents, Donald P. Severance, Secretary-Treasurer. Published at Hildreth Press, Inc., Bristol, Conn. Editorial Office, Room 1-281, Massachusetts Institute of Technology, Cambridge 39, Mass. Entered as second-class mail matter at the Post Office at Bristol, Conn. Copyrighted, 1955, by the Alumni Association of the Massachusetts Institute of Technology. Three weeks must be allowed to effect change of address, for which both old and new addresses should be given.

Iron Grillwork on Historic Buildings in the
Old French Quarter of New Orleans, La.

*An interesting photographic study of a
few architectural details erected
during a bygone period, by*

Ward Allan Howe



THE TECHNOLOGY REVIEW

Vol. 57, No. 5



March, 1955

The Trend of Affairs

Soviet Technical Education

CONSIDERABLE attention has been drawn recently to the quantitative lead, over this country, which Soviet Russia now seems to have achieved in the education of scientists and engineers. Much less is known about the qualitative aspects of Soviet scientific education. In an attempt to evaluate these aspects, the Institute's rapidly growing Center for International Studies is conducting a pilot study of Russian higher education. The Center intends to examine in detail the educational process in at least one core science (physics) and one generalized engineering discipline (mechanical engineering). The work, begun several months ago, has recently been extended until the end of 1955 with the aid of a grant from the Carnegie Corporation of New York.

The notion of what is meant by quality in education is at best inexact and open to varying definitions in the hands of equally knowledgeable people. Certainly the capabilities of an educational system for turning out effective teachers, successful research workers, and competent industrial engineers are all relevant criteria. But the application of such general standards to an educational system, or to specific institutions within a system, in order to arrive at informed judgments is not easy. The task becomes considerably more difficult when the subject is technical education in Soviet Russia. Data are scarce and the language barrier is greater than it is for many other foreign countries. The Center's study, therefore, hinges on the development of satisfactory criteria for evaluating the quality of education and on the gathering of adequate amounts and kinds of information concerning the contemporary scene in Russian education.

The research to date has brought certain parts of the picture into reasonable focus. It is known, for

example, that students entering any of Russia's 35 universities or its 180 higher technical institutes are equipped with a secondary school education that is uniform so far as curriculum is concerned for the entire country. Furthermore, this curriculum contains considerably more mathematics, physics, and chemistry than is given to students in America's pluralistic high school system. One implication of this fact is that Soviet institutions of higher learning do not need to devote their first year to making certain that students have reached a common standard in necessary core subjects.

Russia's higher educational institutions are considerably more specialized than is characteristic of this country. Only in the 35 universities, for example, can a student major in a pure science; science courses are offered in the 180 higher technical institutes, but only as service courses within curricula designed solely to turn out engineers. Thus engineering education (and presumably practice) is likely to suffer from the physical separation between it and scientific research, since the two activities are largely carried forward in separate institutions. In this country there has been a shift of the technical base of engineering from one that is largely empirical to one which is preponderantly scientific. The structure of Soviet higher education may not permit it to make such an adjustment effectively. If this is so, Russian engineers may suffer from a measure of inflexibility and lack of depth in their approach to the problems of their disciplines.

Another distinctive characteristic of Soviet higher education is the organization of the curriculum (typically a five-year course) into relatively narrow subjects of instruction and fields of concentration. We know, for instance, that men are trained not simply as mechanical engineers but as engineers in the technology of specific industries. Evidence at

hand shows that students specialize in such narrow subjects as "The Mechanical Equipment of Cement Industries" or "The Use of Machinery and Electricity in Animal Husbandry."

Such an engineering education might well be appropriate to the rapid expansion of existing Russian (or borrowed foreign) technology, but might be inadequate for creating technological advances or for producing engineers capable of moving among related industries. There is recent evidence to indicate that Soviet administrators have become concerned with the extreme narrowness of their higher technical education.

The Center's "Project Education" is being directed by Alexander G. Korol, who holds a master's degree from Columbia University and is a graduate of Columbia's Russian Institute. Mr. Korol was born in Russia and was in the midst of securing an engineering education when the revolution broke out. Mr. Korol and his small staff are assembling and analyzing materials such as textbooks, curricula, research papers, educational statistics, and so on. Several experts in the fields of science, engineering, and education are being invited to assist in the evaluation of these materials.

An informal advisory committee of senior professors in the Physics Department, consisting of Nathaniel H. Frank, '23, in charge of the Department; William P. Allis, '23, and Philip M. Morse, has agreed to help the Center's staff in establishing usable criteria of educational quality and in evaluating Soviet textbooks and the educational significance of Soviet facilities, curricula, and university practices. It is expected that a similar advisory committee will be formed among members of the Department of Mechanical Engineering. Several Faculty members in other departments also have expressed an interest in offering to help in their respective fields.

No published results of the study are expected before the end of 1955.

Tender Loving Care

PEDIATRICIANS supervising the welfare of foundlings in institutions, when a baby does not thrive although nothing seems to be wrong medically, are said sometimes to write on a child's chart the prescription "T.L.C.," meaning "tender loving care." In the absence of parents, this prescription is fulfilled by a volunteer or staff member, who spends periods giving full attention to the baby, playing with it, fondling it. Such treatment is held to benefit infants tangibly, in terms of improved physical growth and general well-being, when all of the objective expedients of medicine have failed. Skeptics, who may doubt that an imponderable such as "T.L.C." could possibly affect physically so insentient a being as a tiny infant, may be interested to learn of parallel observations made with laboratory animals.

Thus it has been clearly demonstrated that albino rats, of strains commonly used in laboratory research, attain greater maximum skeletal size and weight, and suffer less physical damage from a given amount of emotional stress, if they are taken from their cages and individually petted and played with, for as little as 10 minutes daily. These animals, and the unhan-

dled rats with which they were compared, were given all the food they chose to consume. Superior growth and weight gain of the petted animals were due, it was found, not to the intake of more food, but rather to better assimilation of the food consumed.

Exposure of rats to stress, in the form of sudden loud noise, electric shocks or similar alarming stimulation, causes injuries to the cardiovascular system and the intestinal tract, that may be clearly seen at autopsy. Comparisons of unhandled rats, with rats which had been regularly petted, showed that a given amount and type of stress produced in the petted animals much less physical damage of the sort described. The petted animals apparently enjoyed a sense of security that helped them to react less violently to terrifying experiences. This phenomenon was thought to be attributable to relative physiological stability of the adrenal gland, in turn related to stable functioning of the nervous system.

Obviously, relationships such as those just summarized are easier to observe, and much easier to quantify, in laboratory animals than in human beings. Nevertheless, there is a published clinical study indicating that socioemotional disturbances measurably depressed the physical growth of children. Apparently a sense of security, based upon imponderables such as tender loving care, is physically beneficial to man and beast alike.

Sea Miles and Spheroids

ANNOUCEMENT has been made via the National Bureau of Standards and the Department of Defense, that our nautical mile is now 6,076.10333 feet long. It had been 6080.20 feet. (The British, of course, continue with their own nautical mile of 6080.0 feet.) As far as practical navigation is concerned, the change is scarcely noticeable. To the science of geodesy, however, it recalls some interesting matters about the size and shape of the earth on which we live.

The intention, originally, had been to define the unit of distance for navigators (nautical mile) as 1/60th of a degree of latitude in length, and the meter as 1/10,000,000th of the distance from the equator to pole along the Paris meridian. This logical desire to tie the basic units of length to the girth of the earth by a pair of neat fractions has been subverted by the derivation, every several years, of a new and slightly different estimate of the size of the planet, and by the fact that even an idealized image of the earth is not a perfect sphere.

Eratosthenes (c. 276-194 B.C.) scored a remarkably close estimate of the earth's diameter as early as 220 B.C. (See *The Review*, January, 1955, page 133.) But general agreement about the size and shape of the earth did not occur until the Eighteenth Century. That the earth had the general shape of an oblate spheroid was demonstrated in 1736. Thereafter followed a series of measurements and calculations, still actively in progress, to determine the dimensions of this spheroid, in all possible detail. This ideal geometric shape, or geoid, which the geodesists use, as a matter of mathematical convenience, closely approximates the sea level surface of the globe.

In the United States, for example, much of the earlier triangulation and geodetic measurements were based on the Clarke Spheroid of 1866. But as measurements on the various continents accumulated, John F. Hayford of the United States proposed a spheroid which differed from the Clarke dimensions, in the fifth place. The Hayford data were adopted in 1924 by the International Union of Geodesy and Geophysics as the international ellipsoid of reference.

The so-called figure of the earth differs from the idealized geoid not merely in that mountains and land masses rise above the mean sea level surface, or that basins and occasional valleys drop below it. The actual mean sea level surface is a distorted figure of revolution, generally agreeing closely with the idealized spheroid, but sometimes being tilted in relation to it, or being at a different elevation. As far as the shape (but not the size) of the earth is concerned, measurements of the force of gravity permit rather precise determinations. In the last several decades, advances in instrumentation have resulted in portable gravimeters, and have even permitted measurements at sea, opening up some 70 per cent of the planet's surface to the exploration of gravitational anomalies.

A number of celestial methods for establishing the earth's dimensions are also being investigated. One depends on obtaining the exact moment of totality of an eclipse at three different points—two being on one continent, one on another. The points, of course, can be related to the triangulation nets of the countries involved. If the distance between the two points on one continent is thus known, it can be used to calculate the distance to the moon. This distance made known, some further trigonometry yields the distance from one of the two original points to the point on the other continent.

A rather similar system uses the occultation method, in which the times when a star disappears behind the moon's limb (the apparent edge of the moon's disk) and again emerges, are measured accurately at several stations.

A third technique uses a special camera to photograph, from different points, the moon and its surrounding stars distinctly enough to permit measurement of the angular distance between the moon's limb and the stars. With the aid of other data available, the distance of the observation points to the center of the earth can be obtained with an accuracy of about 40 to 50 meters.

Engineers as Businessmen

IN recent years there has been an increasing awareness among economic historians of the importance of the personal factor in the process of economic growth. In particular, innovation and change in industry, at least in a free society, have come to be regarded less as responses to impersonal economic forces than as the product of a myriad of business decisions made by individual businessmen with complex motivations. In this process, technological considerations are necessarily a major element. Much of the study of innovation, for example, is concerned

with technological development, and in the general area of industrial management it appears self-evident that a substantial proportion of the decisions that have to be made will involve technical problems.

The role of the engineer as technological expert is well known and easy to visualize. The relationship of the engineer to the managerial or entrepreneurial functions is less easy to discern, although it may be of fundamental importance in a technological society. Certainly engineers play important roles in the technical development of products and services. It is equally certain that no business can thrive unless such products or services are also placed on the market. The engineer must take part in this process; he may do this by making recommendations, for acceptance or rejection, of certain lines of action by those who make policy decisions, or he, himself, may be an active participant in the decision making processes of business.

The number of engineers who have become business leaders in the United States and the variety of industries and business organizations in which they have been active is substantial. Their success and contributions in fields for which they were not primarily trained raises a number of interesting questions. Is there any common denominator in the method by which they change from engineer to business manager? Why are engineers more prominent as entrepreneurs in some industries than in others? What characterizes the industries in which engineers are most influential? At what stage in the development of an industry are engineers most likely to be in control? Within the same industry are there significant differences between the firms which are managed by engineers and those which are not? In those industries in which research plays a significant part, may it not be desirable to employ engineers in managerial functions to a greater extent than in industries in which research plays a small part?

We are still a long way from being able to answer such questions. Nevertheless, some information on these topics is already available. Moreover, a program of research conducted by John B. Rae, Associate Professor of History, is under way to find answers to these and other related questions. In its initial stage, the program has been conducted with the assistance of grants from the Research Center in Entrepreneurial History at Harvard, and the School of Industrial Management at M.I.T.

Because of the magnitude of the subject, the study conducted by Professor Rae has so far been limited almost entirely to an examination of American industrial growth during the Nineteenth Century and the first decade of the Twentieth. It is not sufficiently complete to warrant definite conclusions, and certainly the important period of the past 40 years should be thoroughly examined before the study can be said to have achieved its aim. Nevertheless, on the basis of what has already been done, it is possible to suggest some general observations of a tentative character. These are offered more in the nature of hypotheses than as conclusions, and may be useful in indicating some of the main aspects of the main problem which appear to apply to all industries. They can be listed thus:

(1) Engineers have never constituted a majority of the business leaders in any industry. This point can not be elaborated further because there is insufficient quantitative data. But, the influence of engineers on business policy is not a function of their numbers.

(2) Engineers have been most conspicuous as leaders of business during the pioneering stages of industry, in situations where the basic problem was to make a new technological development commercially practical. The next most favorable stage seems to come after the industry has reached maturity and has attained a condition of relative stability.

(3) The industries in which innovation and technological change have been constant are most likely to have a strong engineering representation in management. This proposition may appear self-evident, but it is not clear whether the importance of the technological factor draws engineers into management, or whether the fact that engineers have an influential voice makes for a greater emphasis on technological change.

(4) For the period covered by the present study, engineers appear in general to have been more successful in becoming heads of small business concerns than of large ones. Of course numerous cases may be cited in which engineers—including a gratifying number of Technology Alumni—have reached top administrative posts in large corporations. Indeed, the increasing incidence of such cases in recent times suggests that the Twentieth Century has witnessed a very marked upward trend both in the proportion of engineers engaged in management and in the influence they have exercised on business policy. It is desirable that further study be undertaken to determine to what extent business practice with respect to the utilization of engineers in management has actually changed in American industrial development, and what the significance of such changes may be.

(5) The role of engineers in business has been determined in part by non-economic factors. Besides the obvious one of personality, questions of social structure and status need to be given weight. Some of the subordination of engineers in the textile industry undoubtedly traces back to the fact that the New England merchant-capitalists of the early Nineteenth Century had a tendency to classify all technicians as "mechanics" and therefore socially inferior, whereas the automobile industry, developing in a very different social climate, found it desirable to emphasize the contributions of its engineers.

The validity of these propositions may or may not be sustained by subsequent research. It is certainly desirable that they should be tested. If the issues that they raise can be resolved, then we will be able to make a reasonably accurate appraisal of the role of the engineer in the management of American business, and from that knowledge, to gain a clearer insight into the processes whereby technological change is integrated into industrial growth.

Machine Translation

EVER since the automatic digital computer was developed, there has been much discussion of the possibility of using these machines to perform tasks different from those for which they were designed.

One of the possibilities that has intrigued many people has been the idea that perhaps such general-purpose computers could be programed to translate languages.

If it is possible to translate languages by machine, it seems that machines already exist that could do the job. The problem is to develop our scientific understanding of languages to the point where we know how to program such a machine to translate. The providing of such an understanding required for this purpose poses a great challenge to the linguist and to the scientist. The major problems to be solved are linguistic rather than mathematical or engineering.

Word-for-word substitution is certainly mechanically feasible. Various workers have shown that for related languages (as, for example, English, German, French, and Russian) a word-for-word substitution is of some use.

There are two great difficulties in word-for-word substitution as translation, however. The first one may be called the problem of multiple meanings; the second one may be called the word-order problem. They are actually aspects of the same problem.

The problem of multiple-meaning has sometimes been solved by submitting several alternative translations of each word. The reader is then asked to choose the best meaning from among the choices presented. Experiments have shown that it is, in general, possible but difficult for a person confronted with such lists of meanings to choose the best one.

Any strict word-for-word translation will have difficulty when the traditional word orders of the two languages involved are different. The relative importance of word choice and word order is different in different languages.

In a sentence-by-sentence translation, very few of the multiple-meaning and word-order difficulties remain. If a German scientific paper is cut up into pieces, each containing one sentence, these can be picked at random in arbitrary order and translated rather easily into English sentences, for example, with little loss of meaning. When the sentences are restored to their original order, a fairly good translation appears. It would seem, therefore, that sentence-for-sentence translation would be acceptable.

If sentence-for-sentence translation is to be done at all, then it seems that perhaps the only way is to take the word-for-word translation as a first approximation and improve on it by taking into account the context by a series of grammatical and syntactic rules. At M.I.T., research along this line is being carried forward between related languages in the Indo-European family (German into English), under the direction of Victor H. Yngve, Assistant Professor of Modern Languages, and the Research Laboratory of Electronics. The program is supported in part by the Signal Corps; the Office of Scientific Research, Air Research and Development Command; the Office of Naval Research; and the National Science Foundation. It is anticipated that it will be easier to solve the problem between these related languages, and it is hoped that such solutions will assist in the eventual solution of the more difficult problem of mechanical translation between unrelated languages—for example, Japanese and English.

The Limitations of Logic in Engineering Education

A Vertical System of Education, Emphasizing Simultaneous Development of the Logical and Informal Faculties Is Advocated

By JOHN B. WILBUR

Today's success in engineering education, and the promises of even greater significance tomorrow, can be a source of pride to engineering educators without being a basis for complacency. The suggestion of a new and different approach to engineering education, such as that contained in this article, inevitably implies some criticism of its present structure; yet it is the very strength of the present structure that merits the search for improvement. The views expressed here are personal ones of the author. They are presented with the hope that they may provoke interest and further discussion among the many who are constantly striving to improve engineering education. — Ed.

THE primary purpose of education is to aid young men and women in their preparation for effective living. The program of engineering education is built around a core of scientific and engineering subjects; it is desirable that this program aid in the development of good engineers, since engineering ability is an asset for effective living; it is, however, even more desirable that the program be directed toward preparation for effective living itself. Thus engineering education can flower to its full potential only when it serves as a base for general as well as for professional development.

The Problem

The difficulty of attempting to cover, in any reasonable period of time such as four years, all the material that could be included to some apparent advantage in an engineering curriculum, is well known. In recent years, this dilemma has been heightened by the rapid growth of technology and by increased recognition of the importance of studies in the humanistic-social areas. A number of steps have been taken that aid in meeting this situation, and these include: a reduction of the time devoted to training in the manual skills and in the details of professional practices; a more efficient use of time through greater emphasis on the more generally applicable principles of science; and a tendency toward a lengthening of the period of formal education either through graduate study or, in some instances, by extending the duration of undergraduate education to five years. Yet the problem of the crowded curriculum is far from overcome; it is probable that we still crowd in too much coverage and, unless further means can be found to counter the effect of our ever-expanding

technology, the difficulty promises to become more rather than less acute. Actually, such means are available and become apparent if we focus our attention on the proper objective of engineering education.

It is an obvious absurdity to attempt to teach so many things that the student will be prepared to meet most of the situations he will encounter — even in his professional life, to say nothing of his personal life; the effort should, rather, be largely directed toward the development of those qualities that will help him most in coping with whatever situations he may encounter. Thus while coverage of the curriculum is important, and deserving of careful consideration, it can — without serious detriment — be varied appreciably and restricted as necessary, provided the subject matter selected be taught so as to develop in the student those qualities that are most essential as preparation for an engineering career and for effective living.

What, then, are these qualities? With due humility, and without attempting to establish an order of importance, the writer ventures to consider them under the four categories of emotional, moral, physical, and mental. The emotional qualities would include those such as sympathy and kindness; the moral, those such as honesty and responsibility; the physical, those such as health and vitality; and the mental, those such as intelligence and imagination. While recognizing the full importance of the first three categories — the emotional, the moral, and the physical, they tend to lie outside the province of the strictly academic program, and will not, therefore, be discussed in much detail. They should certainly be integrated into the curriculum to some extent: Courses in the humanities can, for example, contribute to emotional maturity; the study of professional ethics, to moral growth; and required participation in athletic programs, to physical well-being.

There are also indirect ways in which the academic program can contribute to emotional, moral, and physical development: Happily, for example, engineering breeds honesty by its very nature; both science and engineering are importantly involved with truths that are inviolate, whence engineering education creates a climate that nurtures the moral condition that makes honesty almost instinctive. But it is the fourth category — that of the mental qualities — that is the essence of the academic program.



David W. Corson from A. Devaney, N.Y.

The educator in engineering, therefore, has the special obligation of utilizing engineering education as a vehicle for encouraging and helping his students to develop their mental faculties; in short—but not too accurately—the student should be taught how to think.

This conclusion will meet with little opposition; indeed, it is so close to being a cliché that some will wonder why the writer has labored to achieve the point. Most engineering teachers sincerely believe that engineering education, as we know it today, is extremely successful in teaching students how to think. It is true, of course, that we are very successful—possibly even too successful—in developing ability for one type of thinking—for logical thinking. But are there not other types of mental faculties that may be equally or even more important? The writer has been led to the conclusion that there are—that we are presently making too little deliberate effort to aid students in developing these other mental faculties—and that we should, therefore, modify our programs of engineering education along lines designed to achieve that objective.

The Analysis

Before defending the thesis that we are not, at present, properly developing the mental faculties of our students, it is necessary to give some consideration to the panorama of the mental processes. The writer does not pretend to fully understand these processes, or their interrelationships, or the way they operate as components of the so-called art of thinking; but he believes nevertheless that the distinctions made herein are sufficiently realistic to support the

validity of the educational concept toward which this paper is directed.

For our purposes, we will consider these mental processes as being more or less separable into two major categories: the logical and the informal. Logical thinking is that somewhat formal, somewhat systematized portion of the mental processes that consists wholly or largely of *exact* reasoning. This type of thinking is so well understood and so highly esteemed by so many teachers of engineering, that it seems quite unnecessary to elaborate on it further or to extol its virtues. In order to make himself perfectly clear, the writer affirms his belief that logical thinking is essential, both to engineering and to effective living; the only qualification that he would and does make in this connection is that the ability to think logically should not be overdeveloped at the expense of the informal faculties.

The informal mental processes are those less formal, less systematized operations of the mind that involve relatively little if any *exact* reasoning. Unquestionably the logical and the informal faculties are more or less interwoven in most mental processes; some might, for example, say that judgment could be logical. A controversy on this point would be largely a matter of words and definitions: From the writer's viewpoint, and as used in this presentation, "judgment," if based entirely on exact reasoning, would be, not judgment, but logical thinking; it would, perhaps, be more accurate to say that logical judgment is informal thinking, largely supported by logical thinking. It is worth noting, too, that conclusions reached wholly or largely by use of the informal faculties, though not wholly supported by logic, are not in any sense necessarily illogical. It may simply mean that the logic that might have supported the conclusion is wholly or partly unused, or unknown, or, perhaps, nonexistent. It is well to remember that what we take to be some of our greatest truths are incapable, and will, perhaps, always be incapable of wholly logical explanations.

For our purposes, we will separate the informal mental processes into those that lead to values and those that lead to concepts: The first is represented by judgment, wherein reflection on past related experience leads to the formulation of values through comparison and discrimination; the second is represented by imagination, wherein some process of the mind leads to the formulation of mental images or concepts. Judgment and imagination may be either conscious and deliberate, and demanding of a certain period of time; or they may be largely subconscious and instinctive, and almost instantaneous in their action, from the conscious viewpoint—in which case we speak of them as being intuitive. Engineers, as a group, may be inclined to doubt the value of the intuitive powers; yet one may search a long time without success for the solution of a problem, and suddenly it will evolve—and perhaps at a time when he is thinking the least about it. It may well be, moreover, that the intuitive faculties appear in the creative processes to an important degree. In any event, we shall consider judgment, imagination, and intuition as major components of the informal mental processes.

In a discussion of creative engineering, Chester I. Barnard* wonders without casting any aspersions why it is that people who have had scientific training so frequently have so little sense, and concludes "that one of the important limitations of our civilization has been the overemphasis, the inclusive emphasis, of the importance of the logical processes and the sciences which have developed out of them, and exclusion of the appreciation of the other faculties."

The engineer and the scientist may question the validity of Barnard's observations and conclusions; yet if one considers a typical problem of life such as "How can I get Johnny to take more interest in his school work," or a typical problem of leadership such as "Whom shall I select to become the new division head," or a typical problem of engineering such as "What wind and ice loads should I use for the structural design of a certain television tower," it becomes necessary to acknowledge that one cannot get very far with the problems of engineering and of effective living if he must rely primarily on logic, and is either unable or unwilling to exercise the informal mental faculties. Logic implies a systematic relationship between all the factors in a situation; as expressed by Allan R. Cullimore, '07† it "does not in any way guarantee the ultimate solution of a problem" that is but partly systematized, or wholly "unsystematized and which, perhaps, has not been capable up to the present time of being systematized." Insistence on the almost exclusive use of logical thinking can lead to frustration, to misleading pseudo-logic, and to the avoidance of things that cannot be systematized; since such avoidance reduces participation in many of the activities encountered in life and in the broader phases of engineering, it is not too difficult to suspect why it is that some intelligent engineers are relegated to "turning the crank" so to speak, while other people who are less "intelligent" may determine the policies and issue the instructions.

Thus while the ability to think logically is an important asset, logic finds one of its greatest uses in supporting the informal faculties; and the informal faculties themselves appear to be equally and possibly even more significant among the mental capacities. We cannot claim that engineering education is successful in teaching students how to think, unless it deliberately and effectively contributes to development of informal as well as the logical, faculties.

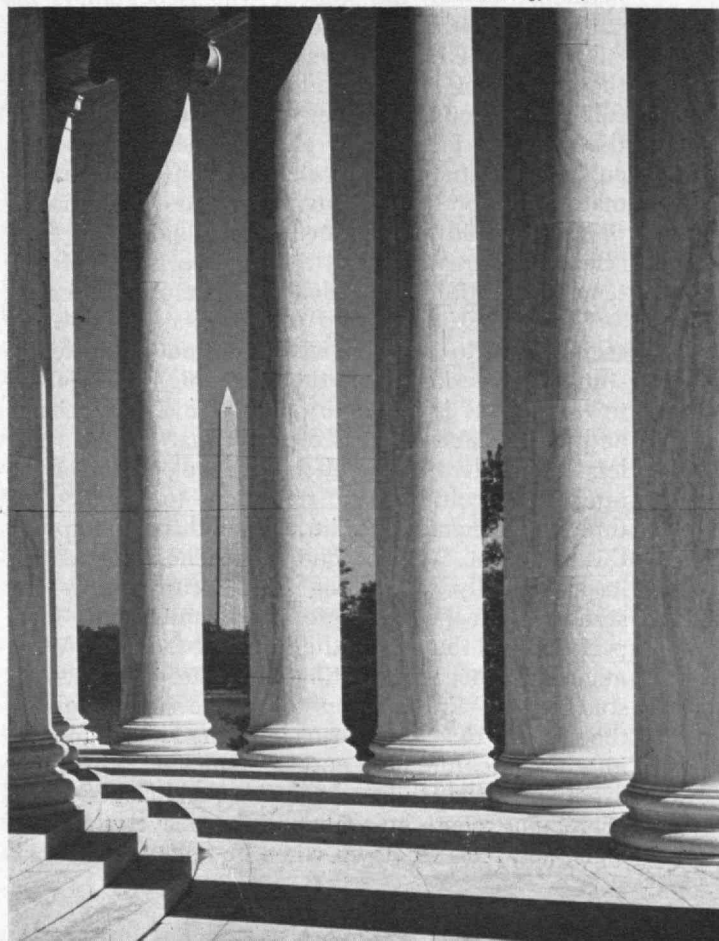
One reason why engineering education presently emphasizes the development of the logical faculties arises from the fact that it is easier to develop the relatively systematized processes of logical thinking than the essentially unsystematized processes of informal thinking. Some will question whether the informal faculties can be effectively developed or even developed at all by education. They may hold that these are things that cannot be taught; that potential good judgment, for example, is something that the student either has or does not have; that if he has potential good judgment, it can mature only by natural development extending over years of ex-

perience; that if he does not have it, nothing can be done about it. They may hold further that even if the informal faculties can be developed by education, the student—and particularly the entering student—is too immature, and too lacking in experience to be expected to exercise these faculties.

The writer agrees that judgment, as an example, cannot be developed in students who have little or no potential judgment, but holds that such students should not become engineers. If the successful pursuit of a course of studies required a certain degree of judgment, those students without potential judgment would fall by the wayside, and the mere process of academic attrition would upgrade, on the average, the judgment of our graduates. Now as for those students possessing potential judgment, it is true that they are immature and lacking in experience on which to reflect in pursuit of values; to the writer, however, this does not suggest that they are unable to use judgment, but only that their judgment may not be very good. It is, however, the *development* of judgment rather than the use of *good* judgment, that should typify the educational process; presumably the way to begin the development of good judgment is to start by using the best judgment one has—however poor it may be—and to hope that judgment will improve with use. If judgment is continuously exercised during the acquisition of a background of reflective experience, it should be possible to accelerate development of skill in the formulation of values by comparison and discrimination.

The alternate of not trying to use judgment to any important degree until the background of reflective experience has reached some arbitrary level is, to the

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* *Creative Engineering*, page 8 (New York: American Society of Mechanical Engineers, July, 1944).

† *Creative Engineering*, page 5.

contrary, certain to delay the development of judgment, and almost certain to exercise an inhibiting effect on its later development; it is worth-while pondering on the proposition that the entering student, with his native imagination and with his potential capacities for judgment and intuition, may well be—in some respects—in a more favorable position to begin the exercise of his informal faculties, than he will be after subjection over a substantial period of time to the climate of systematic thought, of exactitudes, and of definite solutions. Thus the student should be encouraged to exercise his informal faculties from the very beginning of his engineering education.

The difficulties of developing the informal faculties through engineering education are not, however, to be minimized; and this is partly because engineering education, as we know it today, creates a climate that presents obstacles to their most effective development. A major, though perhaps subtle, reason for this rather unfavorable climate, finds its source in the fact that engineering (the science and art of making economical use of the materials and forces of nature for the betterment and convenience of mankind) makes use of science (systematized knowledge considered in reference to the discovery of understanding of truth) and mathematics (the science of treating exact relations existing between quantities and operations) to such an extent that it is commonly believed necessary to introduce the student to the study of engineering through the study of science and mathematics.

While engineering, even in its elementary stages, is fertile with situations that present opportunities for developing the informal faculties, science and mathematics—to the student who is beginning his study of engineering—are essentially areas of logical thinking. Creative science and mathematics, and those areas of science and mathematics not as yet fully understood, may well demand as much use of the informal faculties as does engineering; but the engineering student, who studies science and mathematics as a prelude to engineering, does not rise to these scientific and mathematical heights. To him, science and mathematics represent a world of systematic exactitudes that leads him into engineering.

Thus the student, who comes to an engineering school eager to study engineering, is not permitted to study engineering at the time he is highly motivated to do so, but is made to study elementary science and mathematics—areas of study that do not easily lend themselves to the effective development of the informal faculties. The transition to engineering through mechanics does little, if anything, to improve this situation. By the time he reaches engineering itself—usually well along in the curriculum—the student is steeped in logic and almost totally inexperienced in the use of the informal faculties. What might have been an exciting adventure to a first-year student—an introduction to engineering involving the use and development of both the logical and the informal faculties—is now a somewhat disturbing experience; the student is entering a difficult period of readjustment; he wants to base everything on logic, and feels let down when he finds that he can-

not do it; yet he somehow struggles over the hurdle, and begins to recognize the necessity, and finally the importance, of the informal faculties.

During his period of formal education, the student has been studying subjects in the humanistic-social areas; these areas afford excellent opportunities to develop the informal faculties; and the teacher of humanities has doubtless done his best to take advantage of these opportunities. But the latter has had his problems, too; altogether too many of his students have developed such a false set of values that they depreciate the worth of any subject that is not based largely on logic; and in his struggle to develop the informal faculties of his students, the teacher in humanities has, to a large extent, been forced to work alone. Though approving the goals of the humanities program, the teachers of science, mathematics, and engineering have unwittingly hindered rather than aided in their culmination.

If this rather depressing recital be somewhat overdrawn, it nevertheless has enough truth in it to warrant our serious disturbance. It seems almost unnecessary to conclude that engineering education as a whole struggles in a climate that falls short of an ideal setting for promoting the development of the informal faculties; that something should be done about it, even if that something involves a fairly major operation. Perhaps it is not amiss to add that if a major operation must be performed, this should not be totally unexpected; while there have been modifications and improvements in undergraduate engineering education during the years since its inception, its basic structure today is essentially the same as was introduced more than a century ago.

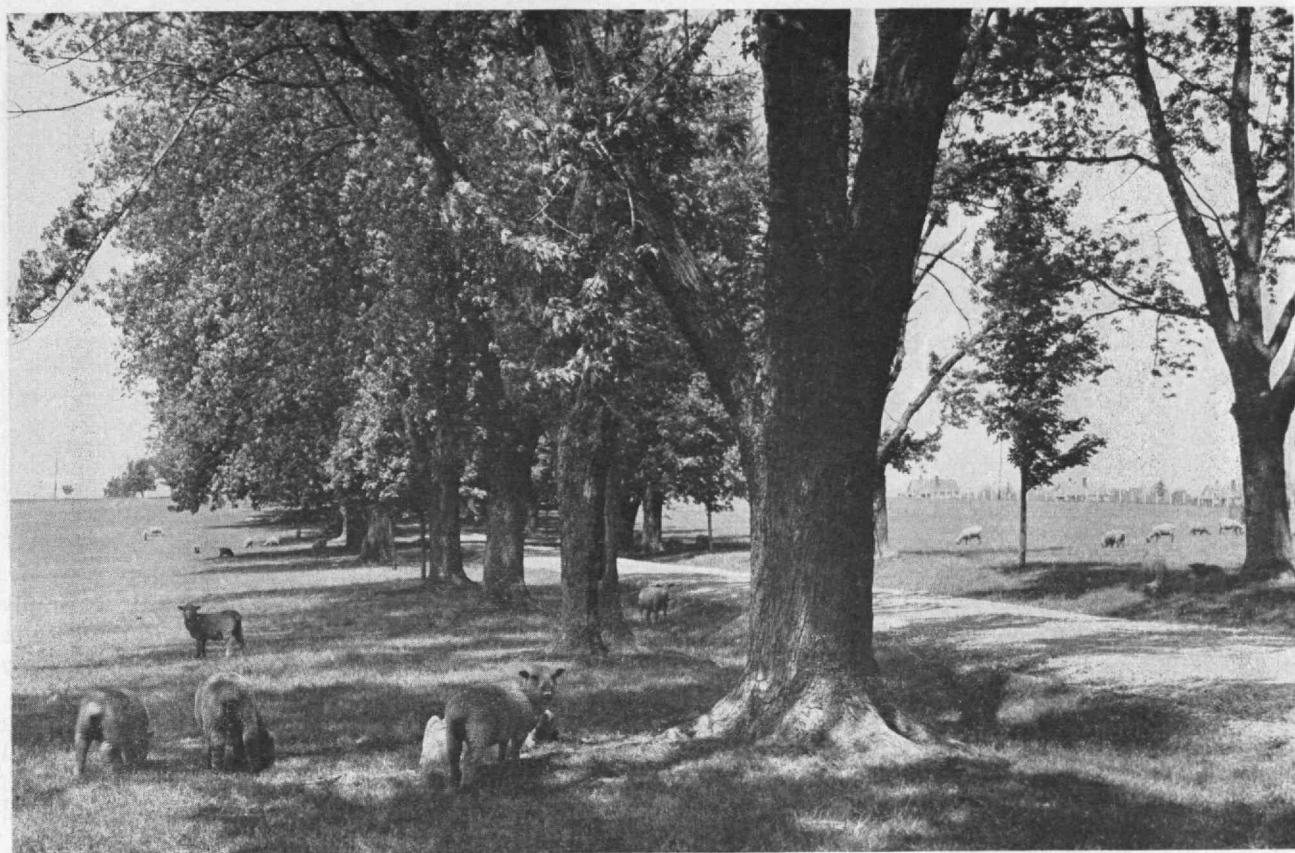
The Synthesis

If engineering education is to be an instrument for developing the informal as well as the logical faculties, the responsibilities for this must not be largely carried by default, so to speak, by our educators in the humanistic-social areas, but should be shared by our educators in the areas of science and mathematics, and even more so by our engineering educators. Briefly, the suggested approach to this goal rests on the proposal that an appreciable portion of the educational program should, from its very beginning, and extending throughout its entire duration, center on engineering assignments that cannot be carried out in their entirety on the basis of logical thinking, and are, therefore, demanding of the exercise of the informal faculties—problems of a type that do not have any one “correct” solution.

If we are to accept this proposal, we must—to an important degree—be willing to give up the *horizontal* concept of education which tends toward the addition of material—layer by layer—in a manner such that the material of each layer supports the material above it; in short, we should lessen our concern with the “prerequisite” aspect of the material to be taught. This is because the horizontal concept, in taking the student from the most generally applicable to the more specifically applicable areas of knowledge—as, for example, from physics to mechanics to structural theory to structural de-

(Continued on page 256)

A Bumper Crop of —



International Harvester Company

Grass

A Program of Grass Cultivation Is Urgently Needed to Permit Our Agriculture to Get Ready for Future Needs

By MILTON E. PARKER

GRASS, suddenly, has come into its own! It soon may become a powerful economic force, influencing agriculture, government, and industry as few individual crops ever have before in our history. It is easily the most talked about topic in agriculture at the present time. Not only has it been debated at great length by the Congress, but it has also figured prominently in the deliberations of the President and his Cabinet, and is the keystone of a new national program developed by Ezra T. Benson, Secretary of Agriculture.

Thus American farmers who have broken all records in recent years with bumper harvests of corn, cotton, wheat, and other staples may well take to boasting of 1955 for its unprecedented production of yet another crop. And that crop, amazing as it may seem, will be grass — just plain old grass!

Such emphasis upon the sod types of grass rather than wheat, oats, and other food staples of the grass family will seem mysterious indeed to the average city dweller. For to him, grass is the contrary stuff he plants on his lawn in the fond hope that it will provide a lush green carpet to set off his home. Based on

his experiences, he knows it requires watering — especially when urban water supplies are at low ebb due to drought conditions — or else it turns a heart-breaking brown color that definitely is not wanted. On the other hand, if Mother Nature sheds copious quantities of rain, he has difficulty getting it cut sufficiently often to keep it from looking like a pasture. Therefore, to the urban citizen, grass does not “produce” anything but a crop of headaches. Consequently he will be baffled to learn that it can be considered a “crop” by the wildest sort of reasoning. And to suggest that it might influence his future or his country’s future, one way or the other, might seem mere piffle to him.

For farmers to be considering taking many millions of acres of land out of food production, in 1955, will probably convince many city dwellers that an end of farm prosperity is really in sight. Without knowing the facts, city folk may even assume that the farmer is in for hard times and that his troubles will doubtless spread to the industries supplying our agriculture. And if he is inclined to be panicky, his city cousin may fear that America’s farm economy is tak-



International Harvester Company

ing a nose dive that inevitably will take the rest of the nation's economy along with it into another big depression.

Such fears are truly groundless. Actually they display a lack of knowledge about grass and the essential role it has played — and the still greater role it is expected to play — in the scheme of things. For, in reality, grass can be most beneficial to the nation.

Our farm output has been increased 52 per cent in the last decade to provide for present needs. Yet in the face of the knowledge that our population is increasing at a rate variously estimated of from 7,500 to 11,000 persons per day, there is every indication that production must be increased enormously to supply our future population. Greater production also means more mechanization, greater utilization as well as increased quantities of commercial fertilizer, plus vastly improved farm methods. It is even conceivable that millions of jobs will be created to supply farmers with the additional equipment and supplies they will certainly need.

With 70 per cent more children under five years of age than we had in 1940, our existing system must be nearly doubled in the near future. We probably will have to spend 40 billions of dollars just to meet current needs for schools and hospitals alone, besides providing jobs for thousands of bricklayers, plumbers, architects, engineers, chemists, real estate brokers, and others. Yet everything such groups buy for themselves will, in turn, help all of us. Factories must expand, highways must be modernized and expanded on a vast scale, and equipment must be replaced to cope with our expanding opportunities. In fact, our nation should spend the staggering sum of 500 billions of dollars immediately to meet our current needs for schools, hospitals, homes, highways, factories, and other basic necessities — according to The Advertising Council. All this is required solely for the tremendous job of keeping up with our future population growth.

With such gigantic tasks facing us, why is this the time for our farmers to raise a bumper crop of grass?

The answer, briefed down to a few words, is simply this: *the program is needed to permit our agriculture to get ready for the future, while taking a necessary breather for the present.*

Basically, the current interest in grass is truly the harvest of legislative efforts to cope with the colossal surpluses of many farm crops. Most of our citizens are well aware that storage bins and improvised shelters are bulging with millions of bushels of grain, millions of bales of fibers, and millions of pounds of butter and other dairy products. While a comfortable surplus of farm produce is always good national security insurance against crop failures or the sudden demands of a great war, the present level of our storage stocks is realistically regarded as not only excessive, but actually dangerous to our nation's economy. Because of their Herculean size, our current surpluses are definitely exerting an unrelenting downward pressure on the prices of most commodities, despite the fact that the surpluses are being withheld from the domestic market. These surpluses have been stagnated because high price supports have made it all but impossible to market foodstuffs abroad in competition with foreign producers. This fact has become especially pertinent now that overseas farms are back in full-scale production, following the disruptions and upheavals created by World War II. To complicate the problems of the nation's economy still further, not only is the storage itself costing additional millions of dollars each year, but the problem of finding new storage space has become positively acute. Then, too, there is widespread danger of spoilage and waste, with John Q. Citizen facing the loss of many millions of the billions of dollars he has had to invest in food stockpiles of bumper crops in recent years.

To reduce further accumulations, drastic legislative measures have been enacted in an attempt to discourage the overplanting of crops already in surplus supply. For all farmers who participate in price-support programs, the acreage planted to surplus crops will be limited, as it has been in past produc-

tion control measures. For 1955, however, controls will also be extended both directly and indirectly to the farmer's "idle" acres — to make certain they will not be directed from one surplus crop only to be planted to another equally surplus one.

At this point, grass comes into the picture. From all present indications, millions of those idle acres will be planted to grass. Also, there is a strong possibility that millions of those acres, or their equivalents, will remain in grass for years to come. Despite the fact that the drastic program originally announced for 1955 has been relaxed, due to political pressures, the program as it now stands undoubtedly will force millions of acres into grass, due to stringent "cross compliance" requirements for crop supports.

To quote Allan B. Kline* who recently retired as president of the American Farm Bureau Federation: "We are . . . facing the fact that when 30 or 40 million acres are taken out of certain supported crops in order to hold up prices of those crops, it is unfair to allow production from the diverted acres to destroy the markets for the 60-odd per cent of the gross income of American farmers which comes from the production of unsupported crops."

In an obvious attempt to solve the surplus problems, such a program is a definite departure from anything attempted in the past. Yet it represents only a forward step for the farmer. Furthermore, it represents a step that properly should have been taken long ago. Augmented as it was by war demands and abetted by the subsequent peacetime price-support programs (based on acreage allotments), the intensified agriculture that has been practiced has come perilously close to exhausting much of our soil. Consequently, an enormous acreage of grasslands now can contribute immeasurably to a greater and more secure America for many years into the future. Furthermore, it will help prepare much of our land for the future demands to be made upon it by our constantly expanding population.

These seemingly startling beliefs are not without rhyme and reason, such as can be summed up in one brief statement, to wit; *agriculturists and economists are convinced more and more that grass is the most important crop the American farmer can grow at this time!*

Grasses are vitally important because they will prevent millions of "idle" acres from deteriorating. Such depletion of natural resources cannot be allowed to take place, for with the pressure of population as presently prevailing, it will only be a matter of time when many fallow acres of 1955 must go back into production. Until they are needed, however, they can form a living "reserve bank" of arable land — and each and every acre must be protected against Nature's ravages. The best possible protection is provided by grasses. The humble grasses that so nobly justify their existence as our defenses against erosion include the sod types and such members of the legume family as the clovers, lespedezas, alfalfas, and a host of similar familiar pasture plants. Grasses are a huge family which include the great food staples, such as wheat, rice, corn, sugar cane,

*Allan B. Kline, "A New Direction in National Farm Policy," *The Nation's Agriculture*, December, 1954.

sorghum, millet, barley, and oats — in addition to the pasture and lawn plants, such as Bermuda grass, bluegrass, rye grass, Johnson grass, and so on. In the grassland program, however, only the sod types, the legumes, and the pasture plants are generally considered.

The same characteristics that enable grasses to control soil erosion also make possible flood control. Grasses break the fall of raindrops, the litter acts as a sponge to absorb moisture, and the roots bind the particles together. Grasslands thus slow the runoff of rains and melting snows, permitting millions of gallons to percolate through the topsoil and into the underground supply that is an essential primary natural resource of the nation. Even underground water supply now is a matter of serious concern in many quarters of the land.† Because of overplanting of many soils to conventional crops, and primarily because of the inability of the watershed to absorb and retain moisture, in recent years disastrous floods have swept down many river valleys. Plain common sense, as well as good economics, requires the return of watershed areas to grasslands. This practice will improve flood control far cheaper than by the costly alternatives of the construction of dams, reservoirs, levees, and special drainage systems — all of which are, for the most part, symbols of the waste of good natural resources.

In addition to these advantages, grasses can also save thousands of acres of semiarid Western lands from "dust-bowl" destruction. For many years past, we have heard warnings that overgrazing and the cultivation of crops have been a threat to soil stability in the West. In the Great Plains that lie east of the Rockies, thousands of acres have been plowed and planted against the advice of soil experts. With the removal of the natural grass cover from these lands, winds already have removed millions of tons of topsoil, leaving the land barren of productivity and causing dust storms to sweep the nation. The retirement of these lands from crop cultivation, followed by seeding them once again with soil-holding grasses, will bring the awesome dust bowl under control, and may eventually heal its blight. Then, too, the resumption of cattle grazing (within the capacity of land) will again contribute to the prosperity of the now barren areas if the protecting grasses are given their opportunity.

Quite aside from these obvious advantages of grasslands, another is the "banking" of land it provides the thrifty farmer who plants only enough acres to satisfy actual market needs and holds in reserve, as grassland, the remainder of his land. Thus the farmer is the better enabled to regulate his production and, by working directly with the time-honored law of supply and demand, to a considerable degree he is able to control the prices he receives for his produce. Such practices will tend to stabilize farm income subject only to the variations upon crop yields imposed by weather. Of such hopes is composed the long-range objective of every progressive farmer. There is an even more important short-range advantage to the grassland program, however.

†Thomas K. Sherwood, "Fresh Water from the Sea," *The Technology Review*, 57:15 (November, 1954)

We refer again to the fact that most farm lands have been in intense cultivation for years. This situation has dangerously depleted the content of organic matter within the soil. Organic matter is vital to soil tilth as well as to moisture-retention ability. Decaying organic matter also provides food for both microscopic and macroscopic soil organisms — from bacteria to earthworms — that help convert organic matter and mineral elements into readily utilized plant foods. It is the grasses that provide a greater supply of organic matter to the soil than any other crop. For as the sod blankets the field, the decay and consumption of organic matter is not interrupted as is the case when growing clean, cultivated crops, or when carrying out "pretty farming," as it is sometimes called. Then too, most grasses have a widespread root system that penetrates and breaks up tightly packed clods to a soil with the crumb-like texture that means better land because it has "tilth."

Actually, land that is planted to grasses is not "idle" at all, for it is being improved in countless natural ways with the return of vital organic matter to the hungry earth. Thus the farmer who maintains a good balance of grasslands on his available acreage is drawing interest while thus "banking" his land in the form of increased land values and yields. By rotating his land planted to grass, soil productivity can be improved and sustained to the point where the farmer has prime land available to produce a bountiful yield of his "money crop" when he is ready to invest his "interest."

A still more immediate cash return can be realized if the farmer uses his grasslands not only to conserve and improve his soils, but also to raise a low-cost "crop" of beef or dairy cattle and other livestock for

the national market. Not only do livestock return a substantial portion of plant nutrients to the soil in the form of manures, but the grass they consume is converted into meat, milk, mutton, wool, pork, poultry or eggs — commodities which the farmer can sell. At the present time, grass furnishes about half of all the feed consumed by livestock in this country, although it is authoritatively stated that between 75 and 80 per cent of all cattle feed could and should come from this source. Obviously, increased planting of grasses during the next few years can mean much to the cattle market, to the consumer, and to the farmer.

Bumper harvests have given America huge stores of foods and fibers. Yet it is hoped that a new farm program will reduce further accumulations. While most city-bred persons might assume that bumper crops mean continuing farm prosperity, actually, continued surpluses can mean just the opposite, for waste and spoilage always threaten stored foodstuffs. Grasses can serve America in many ways. Planted in watersheds, they can help control floods and prevent silt from ruining hydroelectric dams. They are also essential in controlling costly erosion along expensive highway roadbeds, for example. Then too, they offer the only hope for rehabilitating the vast dust-bowl area of the nation. Thus while many thousands of acres have already been damaged, grasses can prevent new and bigger dust storms. All-out production has depleted vital organic matter in millions of acres of land where grasses can improve soil tilth and give the farmer a golden opportunity to increase land values. Yet while rebuilding his soil, farmers can reap substantial profits from grass by raising cattle. This is a veritable example of "eating one's cake and hav-

(Concluded on page 266)

Carl Mansfield from Black Star



Interrupting the Great Conversation

*Science Offers New Frontiers to be Explored as Well as
the Virginal Beauty of a Poem Read for the First Time*

By GEORGE TICHENOR

In the past several years there has been a marked decrease in the number of engineers and scientists who have been graduated from colleges in the United States, despite urgent national need for scientists and other technically trained personnel. The author's contention that an education in science and engineering can be just as cultural as one in the liberal arts — and definitely more practical as well, under present unsettled worldwide conditions — may not go unchallenged. Indeed, could an article on the education of young persons serve a more useful purpose than to provoke thoughtful discussion on this timely topic? — Ed.

THE time had come for our young one to go to college. He had always been interested in science and handy with tools, the engineering profession seemed to promise a decent livelihood, and right now, in this stage of the Cold War, our country seemed to be in crying need of scientists. So we were grateful to get him into M.I.T. From the cackle that went up from some relatives, and the neck-twisting silence of some friends, it was obvious we had committed a terrific blunder. Obviously, I hadn't realized that a liberal arts education is chic, and to have an interest in technical training is almost Fascist-minded. Furthermore, to send the boy to another school within tome's throw of Harvard — well, it was like condemning him to the salt mine within full view of Olympus.

Having had a liberal arts education, I am not impressed by its vapors uber vagaries; it is a relatively harmless adornment to a solid education if one has the time and the money for it in normal times. But these are not normal times. Few boys or their parents can afford to dribble out the years of preparation for a livelihood to age 25 or thereabouts. Moreover, intelligent citizens can hardly be complacent about the fact that, this year, the number of engineers graduated declined to a new low, at a time when the Soviet Union is turning out graduate engineers at the rate of better than two to our one, and with special inducements to young men to enter that profession. In these trying times, the humanists among our educators seem to intensify their efforts to crowd their elegancies into technical schools, at the expense, probably, of professional subjects crowded out of the curriculum, so that engineers are graduated with watered-down training. Belatedly,

the public is awakening to the free world's need for more young scientists; but no outstanding educator is "sticking his neck out" to suggest the obvious: that we will not get the scientists we desperately need so long as vocal and influential groups, strongly backed by wealthy endowments, are beating the drum for Great Conversationalists.

Harvard is probably the best example of this Renaissance warmed over. *Time* magazine (March 1, 1954) devoted more than five pages to the University and its President, Nathan Marsh Pusey. Said *Time*:

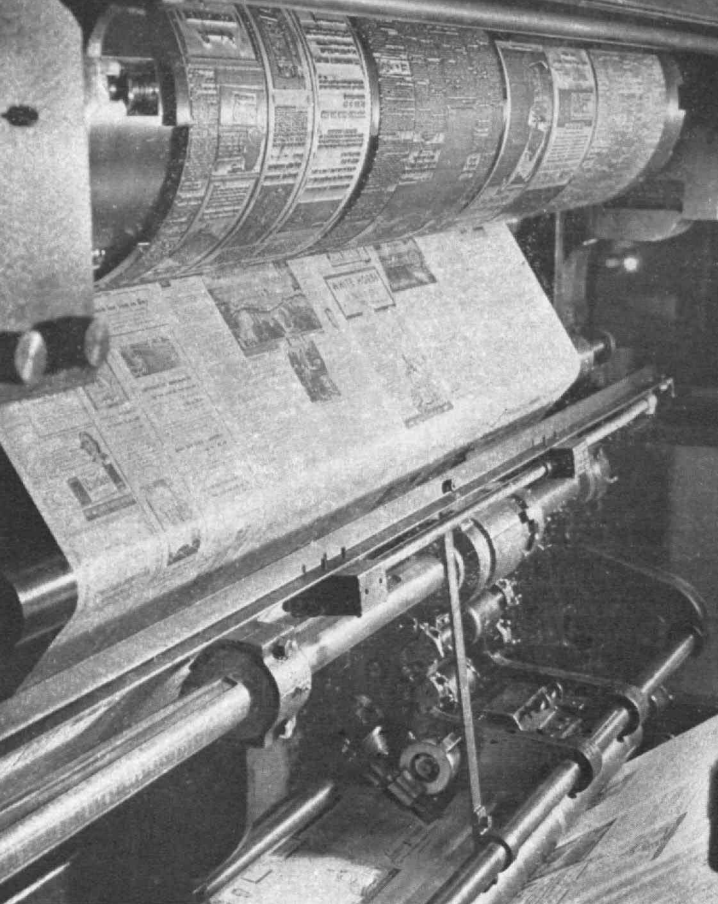
"On the undergraduate level, the pursuit [of knowledge] begins in the widest possible ways. When the curtain goes up it is to reveal the entire sweep of Western Civilization. With none of the old narrow surveys, students are required to take at least six broad general education courses, distributed throughout the humanities and the social and natural sciences. This amounts to a study of giant themes — e.g., the ideas of good v. evil in Western literature, freedom and authority in the modern world, the principles of science. From the start, students read Homer, St. Augustine, Dante and Tolstoy, study the great laws of science and the experiments and logic that produced them. Later, the stage narrows down to the student's chosen field."

Round and round about we go, avoiding the direct grappling with a subject — with Attila knocking at the door.

I can think of at least five reasons for recent declines in the ratio of graduates with engineering degrees to those with arts degrees. First of all is the present fad among educators to promote the Great Conversation. Harvard, already mentioned, is a potent bellwether. In the educational columns of the *New York Times*, almost any Sunday, are depressing quotations from college presidents more anxious to accept, than to buck, the trend.

Secondly, I suspect, there is a contagion of guilt-feeling among scientists for the way the world has gone since the first atom bomb was dropped on Hiroshima. Science is method; it is not a philosophy. But it is indicted as a philosophy — "materialistic science" — and resisted as such. As Bronowski points out in *The Common Sense of Science*:* "Science is a way of describing reality; it is therefore limited by the limits of observation; and it asserts nothing which is outside observation. Anything else is not science; it

* Please see numbered references at end of article, page 264.



Ewing Galloway

is scholastics. The nineteenth century was dominated by Laplace's belief that everything can be described by its causes. But this is no less scholastic than the medieval belief, that everything is contained in the First Cause."¹

Facing, day after day, the relatively less evil of odious choices, it is easy to see how scientists can develop a soft spot (as well as blind spot) for the sweeping Absolutes of doctrine — almost any doctrine. Unfortunately the Ages of Reason have been no less warlike than the others. Examine any one, such as, for example, that Golden Period of the Great Conversation, when Socrates and Plato walked together, and Pericles, in the sun-drenched glory of the gold and ivory monuments of Phidias, and the new, almost alabaster beauty of the Parthenon, could tell his fellow Athenians:

"... ours is no workaday city only. No other provides so many recreations for the spirit — contests and sacrifices all the year round, and beauty in our public buildings to cheer the heart and delight the eye by day . . .

"Our military training too is different from our opponents'. The gates of our city are flung open to the world. We practice no periodical deportations, nor do we prevent our visitors from observing or discovering what an enemy might usefully apply to his own purposes. For our trust is not in the devices of material equipment, but in our own good spirits for battle.

"So too with education. They toil from early boyhood in the laborious pursuit after courage, while we, free to live and wander as we please, march out, nonetheless, to face the self-same dangers . . . In-

deed, if we choose to face danger with an easy mind rather than after a rigorous training, and to trust rather in native manliness than in state-made courage, the advantage lies with us; for we are spared all the weariness of practicing for future hardships, and when we find ourselves among them we are as brave as our plodding rivals.

"We are lovers of beauty without extravagance and lovers of wisdom without unmanliness . . ."²

There was nothing to mar this most beautiful oration of history, except that it was made at a funeral and there were dead men at the feet of Pericles — with many more to come. Neither beauty, nor philosophy, nor lovely utterances stayed the Spartans, whose one specialty was war.

Third, and closely akin to the scientist's aversion toward products which his knowledge makes possible, is the average man's escapism into thoughts remote from today's happenings. The "timelessness" of the humanists is wonderful indeed. There is no time like the past. History, with its dragons in amber, is a satisfying pursuit for timid men, and the past has an imprinted security in these days of slippery footing. John R. Everett, President of Hollins College in Virginia, wrote:

"There is also a significant number of professors who have retreated into the past and now reside in uneasy poverty behind the barricades of what they call the 'scholarly tradition.' Students are admitted to the fortress for fifty minutes three times a week to hear a disorganized recitation of facts or a logical exercise in irrelevancy read from ancient notes. Since the professor is usually afraid or contemptuous of questions, the lectures end with the bell and a sincere sigh of relief all around."³

Fourth, is propaganda. The liberal arts crusaders are to be congratulated on the way they can separate the best of two worlds without breaking the yolk. Their program of lofty idealism is being marketed with the most shameless emotionalism. They have appropriated all the good words, in a way that must win the admiration of any sincere huckster. Note these emotion-loaded words and their effect. What is the opposite of, or other-than, "liberal arts"? Manifestly, it is the *il*liberal, or reactionary, or scientific. If liberal arts has the Great Books, what do the scientists have? And what is the opposite of "humanist" studies? Patently, it must be *inhumanist*, diabolical, alchemical, scientific. You can guess who is worthy to take part in the Great Conversation.

You can't grab by head or tail a statement like this one made by Dr. Pusey: "Not the scientific exploration of things, nor the scientific examination of the behavior of groups of people, but the living, vivid acquaintance with the adventures of the human spirit — this it is which especially can stretch the humanity that lies in man . . . and needle it into its fullest growth."⁴ I don't know why it is assumed that the scientist must be a test-tube drudge and that Curie, Pasteur, Pythagoras, and the rest never experience those skin-stretching thrills to which aesthetes are addicted.

Dr. Pusey, I am sure, is no snob; there is, however, an aura of snobbishness about what used to be called a "gentleman's education" and this is almost in direct

ratio to its impracticableness. Veblen's theory of "conspicuous consumption" is flaringly evident here, and snobbishness is the most titillating ingredient of advertisements.

I have just received a letter from the Adult Education Association which begins: "Because of your own leadership roles, I have been authorized to transmit to you the enclosed invitation to associate membership . . ." Could anyone ring the bell more sweetly? I haven't the slightest idea what might be expected of me as a member — maybe I would have to sell the Great Books — but all I can think of at the moment is that for \$5.00 I could get a listing in the A.E.A. Membership Directory — "a valuable tool enabling national and community leaders to familiarize themselves with other individuals in leadership roles." It also appears I would get the *Leaders' Digest*. It might be playing hard and fast with diabetes, but few of us can resist such sweets. I see myself, already, way up there on the dais.

The Adult Education Association is assisted by a grant from the Fund for Adult Education, an independent organization established by the Ford Foundation, of which Robert M. Hutchins is associate director. Dr. Hutchins, our fifth reason, is worth a full division in the onslaught on technical education. He is witty; he has a flair for making the news, whether in educational journals or *Sports Illustrated* (on why they banned football at the University of Chicago);⁵ and worst of all, he is eminently fair-minded and liberal, so that the weight of his authority can be disastrous when he plunges into the areas where his blind spots are total. He cheerfully recognizes, even seems to foment *The Conflict in Education in a Democratic Society*,⁶ title of one of his books. After a scrutiny of alarming statistics on the sinking level of the output of our technical schools, it is a dizzying experience to come to this book and hear Dr. Hutchins decrying the way technical education is encroaching on the liberal arts! His point may be understandable — if you happen to feel that a liberal arts course is not only the *summum bonum* but the only good of education.

"When I urge liberal education for all," says Dr. Hutchins, "I am not suggesting that all the people must become great philosophers, historians, scientists, or artists. I am saying that they should know how to read, write and figure and that they should understand the great philosophers, historians, scientists, and artists. This does not seem to me an unattainable goal."⁷ This is indeed a task, if you do the job thoroughly and if you are also trying to learn a profession within a four-year college span.

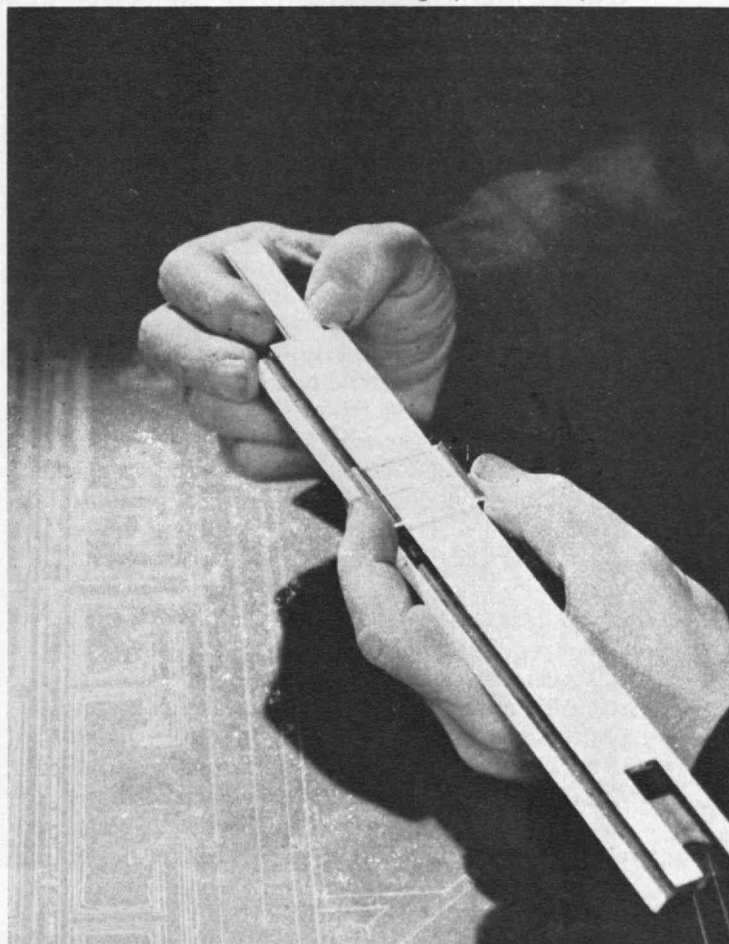
But to prepare for a livelihood seems hardly a worth-while aim in going to college. Technical training of any sort is almost denigrated, it is equated with courses in cosmetology, and certainly hardly worth the serious attention of thoughtful men. For example, ". . . the emphasis on vocational training in America is poor mechanics without education . . . industrial operations have been simplified to the point where little or no training is required for them — they can in fact be performed by twelve-year-old children. . . ."⁸ The whole doctrine of adjustment to the environment . . . leads to a curriculum of mis-

cellaneous dead facts. It leads to vocational training, which the schools are not equipped to give . . ."⁹ Certainly will be less equipped to give if Dr. Hutchins' supporters have their way.

"Meeting Immediate Needs" (Chapter II) gets a special spanking from Dr. Hutchins. The needs change, they distract attention from timeless values which are presumably more important than the problems of the day. This argument reminds me of a man stumbling ahead and falling from potholes into chasms — but his eye is fixed to a telescope. Dr. Hutchins gives the impression that he will oppose all *ad hoc* considerations until we are all post mortem.

Dr. Hutchins harks back wistfully to the medieval University of Paris, and to the age of speculative debate — which the age of discovery severely cramped with its rude emphasis on the undebatable fact. In the field of Twentieth Century education, the need to meet immediate needs has resulted in an "infinite incoherent proliferation of courses largely vocational in aim,"¹⁰ says Dr. Hutchins, who adds "the ordinary American university presents an array of vocational schools of incredible variety and insignificance."¹¹ Also, "I do not wish to resort to the doctrine of guilt by association in lumping pragmatism, positivism, and Marxism together. But they have at least these characteristics in common, characteristics that are fatal to liberal education . . . They all repudiate the past. They all exaggerate the role of science and the scientific method, and appear to hold that the only way of obtaining valid knowledge is the way of experimental science."¹² Dr. Hutchins' own extremism is excusable in the fervor of his feelings, but it might bode ill for a technical school knocking at the door

G. A. Douglas from Gendreau, N.Y.



of Dr. Hutchins' study for a handout, without proper obeisance to the Greeks.

Here and there, he clobbers the specialist: "The process of specialization has therefore turned out to be a process of inhibition. The traditional definition of specialist is that he is a man who learns more and more about less and less. In the United States we have discovered that he can be a man who learns less and less about less and less."¹³

Let us turn now to the type of pedagogue Dr. Hutchins admires, who, if he will pardon the paraphrase, learns less and less about more and more. He is hurrying to a faculty meeting in the ideal university to discuss: "What is a good life? What is a good society? What is the nature and destiny of man? . . . These questions and others like them . . . not susceptible of scientific investigation . . ."¹⁴ The liberally educated man should be able to continue the Great Conversation that began in the dawn of history."¹⁵

To take part in the Great Conversation requires communion, and "The task of bringing about communion . . . can be performed, if it can be performed at all, only through a common training, a common appreciation of the different kinds of knowledge and of the different methods and techniques appropriate to each, and a common continuous discussion on the Socratic model of those ideas which can pretend to be important, together with the consideration of the practical implications of those ideas."¹⁶ Pity our peripatetic pedagogue if he happens to be a pariah who teaches science — though it's hard to imagine such in the ideal university. From what bootlegger will he get the learning, or when will he have time to imbibe it, when so much time is taken with the Esperanto of the humanists? At any rate, he had better not rise in the symposium with science on his breath!

And now we interrupt the Great Conversation to bring you an important bulletin . . . "While the democracies of the world, including the United States, are looking the other way, the Soviet Union and its satellites are training scientists and engineers at an almost feverish pace. The Soviet Union has set out on a definite state policy first to reach and then to outstrip the free world in the preparation of scientists and engineers essential for survival . . ." Thus recounts the *New York Times* on its front page (November 7, 1954), while inside, a full page survey by Benjamin Fine is devoted to an alarming educational trend in the United States. "Not many educators," writes Mr. Fine, "are aware of the tremendous Soviet spurt in the scientific fields. Despite the urgent need for additional engineers and other technically trained personnel in this country, the supply has gone down in the past four years. In 1950, the peak was reached when the nation's colleges graduated 50,000 engineers. This has dropped each year since then, going to a low of 20,000 last June.

"At the same time, the training of engineers and scientists in the Soviet Union has taken a directly opposite stand. In 1928, 11,000 engineers were graduated. By 1950, the number had jumped to 28,000. But in the last four years, the increase has been little short of phenomenal. The number of graduates rose to 40,000 in 1953 and to 54,000 this year. At the

present time, the Soviet Union is graduating two and one-half times as many engineers each year as is the United States . . .

"According to Dr. John R. Dunning, atomic physicist and dean of the Columbia University School of Engineering, Soviet technical schools seem to be equal in quality to those of this country. Dr. Dunning said that the Soviet Union produced as many Ph.D.'s as the United States last year; however, while United States degrees were three to one in favor of the humanities, Soviet degrees ran three to one in favor of science and engineering. 'We have almost lost the battle for scientific manpower,' Dr. Dunning warned . . .

"Dean S. C. Hollister of the Cornell University College of Engineering, calls the situation . . . 'truly critical . . . Many persons fail to realize the impact that science, engineering and technology have had in our national life and world affairs. We can even note a desire that scientific and technological developments be curtailed. This would surely be the road to national suicide . . .'"

A certain presumptuousness of the liberal arts agitators is seldom openly questioned. Parents who were subjected to the liberal arts in their college days, simply shook themselves after the cultural sheep-dip and considered no great harm had been done; they shy away from the curricula of their children. Young men accept with too implicit faith the judgment of their elders, so that no professional group has such a free hand in dictating what the consumer shall get — and like — as the educators. Within their own intramural brawls, the liberal arts jingoists have the quips, they have the men, they have the money too. So "Foundations of Western Civilization" is becoming a "must" course in even the most ironbound technical schools.

It would seem, therefore, that we are turning out not only fewer engineers, but that today's engineering graduates are less prepared for their professional work than they were a decade or two ago. When the "ivory hunters" of General Electric Company and other corporations take the best of each year's crop of graduates, it is increasingly the practice to send the young men not into production, but into further study in integrated schools run by the companies, with courses continuing a year or two or longer. At least 35 corporations, says *Fortune*,¹⁷ are operating these integrated schools and others are being set up. Investment per trainee goes as high as \$10,000 a year, and averages \$2,500. For all of this professional post-college training, you and I, our children, and our country ultimately pay.

The late John Dewey once remarked that there was one point on which the consumer is the world's outstanding authority — "where the shoe pinches" — which has emboldened me to make this complaint. In this country the cost of higher education, coupled with the lowering scholastic standards of, and the deficiency of adequately paid and properly qualified teachers in, public schools is cause for serious concern. The rejuvenation our educational system requires might well be directed, I feel, into the following channels.

(Continued on page 260)

THE INSTITUTE GAZETTE

PREPARED IN COLLABORATION WITH THE TECHNOLOGY NEWS SERVICE

Democracy in Action

This spring Technology Alumni will, as usual each year, elect: officers of the Alumni Association of M.I.T.; alumni term members on the M.I.T. Corporation; members of the National Nominating Committee; and (for classes whose numerals end in one or six) class representatives on the Alumni Council. Ballots calling for the election of such officers will be put in the mails on March 25. Counting of ballots is scheduled to take place on April 25, and the results will be published in the June, 1955, issue of The Review.

Nominated to serve as president of the Alumni Association for the year beginning July 1, 1955, is Dwight C. Arnold, '27, XV, President and Treasurer of Arnold-Copeland Company, Inc. of South Boston. Additional biographical material regarding Mr. Arnold appears at the left of his photograph at the bottom of this page.

To assist Mr. Arnold, the National Nominating Committee has named John J. Wilson, '29, XV, to serve for two years as the Association's vice-president. Mr. Wilson is vice-president of the Minneapolis-Honeywell Regulator Company, and heads its Doelcam Division in Boston. He is also president

and director of the National Instrument Corporation; director of the Minneapolis-Honeywell Regulator Company; director of the Imtra Corporation; and member of the Executive Committee, Associated Industries of Massachusetts. Mr. Wilson has been active in alumni affairs as a representative on the Alumni Council from 1950 to date; as Class Agent from 1951 to date; as a member of the Committee on Nominations for Departmental Visiting Committees, 1952-1955, and as chairman of that Committee for the current year; and as chairman of the 20th Reunion Committee of the Class of 1929. He is president of the Skating Club of Boston; and a member of the M.I.T. Faculty Club, the Corinthian Yacht Club, the St. Botolph Club, and the Minneapolis Club.

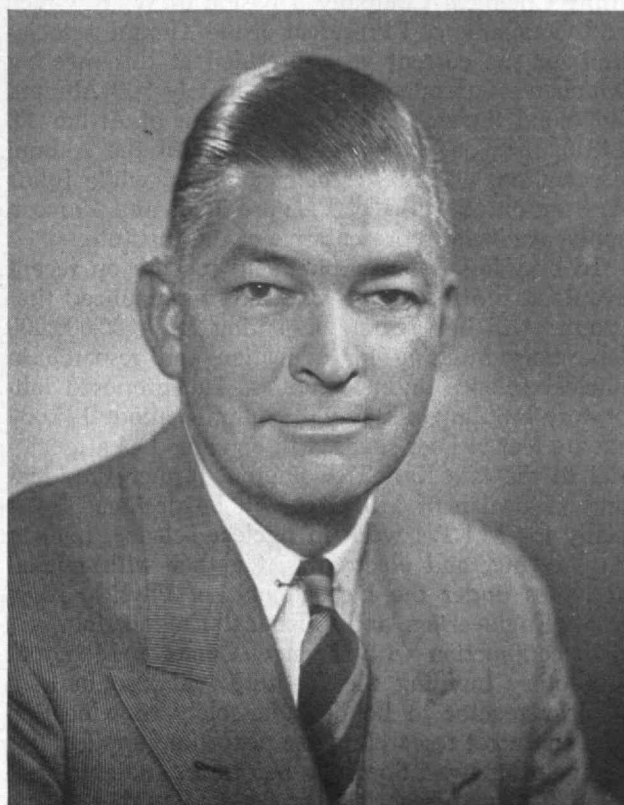
The National Nominating Committee (which presents names of candidates for nomination and election) has, as its members: Raymond H. Blanchard, '17, chairman, Saxton W. Fletcher, '18, Whitworth Ferguson, '22, William S. Brackett, '23, David J. Sullivan, '24, Roger W. Allen, '27, Richard L. Cheney, '27, Morgan Collins, '27, Robert J. Joyce, '28, and Albert R. Pierce, Jr., '31. This Committee has also nominated the following two members to serve, for two years, on the Executive Committee of the Alumni Association: Chenery Salmon, '26, XV, Vice-

Dwight C. Arnold, '27, XV . . . Nominated for Presidency of the Alumni Association

Fabian Bachrach

Presidential nominee for the Alumni Association of M.I.T. to serve for the year beginning July 1, 1955, is Dwight C. Arnold, '27, President and Treasurer of Arnold-Copeland Company, Inc., South Boston, and Director of Stevens-Arnold, Inc., also of South Boston. Mr. Arnold is corporator of the Home Savings Bank, and the South Boston Savings Bank. He has been unusually active in alumni affairs, particularly in the last decade. He was vice-president of the Alumni Association, 1952-1954; a member of the Executive Committee, 1947-1949; representative for his class on the Alumni Council, since 1936; member of the Alumni Fund Board 1951-1952; chairman of the Alumni Day Luncheon Committee, 1954; and previously a member of Alumni Day Banquet Committees. He served on the Committee on Honorary Members, 1946-1948; on the Committee for Financing Development, 1949-1950; and as member of the Committee on Student Activities since 1952.

Mr. Arnold is a member of the Brae Burn Country Club, having served as director, 1944-1950 and vice-president, 1950; of the 76 Club of Boston, of which he was president, 1945-1946; of the Boston Madison Square Garden Club, of which he is a member of the board of directors, 1955; the M.I.T. Faculty Club; the Newcomen Society; and the American Ordnance Association.



president of the Merchants National Bank of Boston; and D. Reid Weedon, Jr., '41, IX-B, Vice-president of Arthur D. Little, Inc., Cambridge.

Nominated to serve for five years, as alumni term members on the M.I.T. Corporation, are: Max L. Waterman, '13, II, Vice-president of the Singer Manufacturing Company, New York City; Fred C. Koch, '22, X-B, President, Wood River Oil and Refining Company, Inc., Wichita, Kansas; and Hugh S. Ferguson, '23, XV, President of Dewey and Almy Chemical Company, Division of W. R. Grace and Company, and President of the Alumni Association.

Nominations for representatives on the National Nominating Committee (with one Alumnus to be elected from each of the following districts) are: *District 1* — Boston — Horatio L. Bond, '23, XV; *District 2* — Manchester, N.H. — Robert C. Erb, '17, XV; — Portland, Maine — H. Stanley Weymouth, '19, I; *District 4* — Buffalo — Edward B. Germain, '13, II; Rochester — Dwight Vandevate, '22, X; Schenectady — Harold Chestnut, '39, VI-A; *District 5* — New York City — Irving D. Jakobson, '21, XIII; Newark — Clayton D. Grover, '22, V.

Boston Midwinter Meeting

WALKER MEMORIAL was the scene of the annual Midwinter Meeting for Alumni of Metropolitan Boston on February 3 — at which William E. Barbour, Jr., '33, President of Tracerlab, Inc., spoke on "The Versatile Radioisotope"; Davis R. Dewey, 2d, '41, Vice-president of High Voltage Engineering Corporation, discussed "Radiation Processing"; and William W. Garth, Jr., '36, President of Photon, Inc., presented thoughts on "A New Era in the Printing Industry."

Hugh S. Ferguson, '23, President of Dewey and Almy Chemical Company, Division of W. R. Grace and Company, and President of the Alumni Association for the current year, presided at this meeting which was attended by approximately 900 Alumni. Raymond Stevens, '17, Vice-president of Arthur D. Little, Inc., and a former President of the Alumni Association, was master of ceremonies, while Julius A. Stratton, '23, M.I.T. Vice-president and Provost, spoke as official representative of the Institute.

In bringing Boston Alumni up to date on recent events at the Institute, Dr. Stratton announced that ground will be broken this spring for a \$3,000,000 laboratory building for education and research in nuclear science and electronics. The proposed laboratory building, which will comprise about 125,000 square feet of floor space, will be named as a memorial to the late Karl T. Compton, former President and Chairman of M.I.T. It will be designed especially for M.I.T.'s work in nuclear science, nuclear engineering, and electronics, together with related activities under the Departments of Physics, Electrical Engineering, and Chemical Engineering.

In conjunction with the new Compton Memorial laboratory building the Institute will also build a nuclear reactor to be devoted solely to education and nonsecret research in the peacetime applications of nuclear power. Speaking before an audience that filled Walker Memorial, Dr. Stratton said:

"If we continue making progress at the present rate, we are confident that we will have the capital funds this spring to start construction of the Karl Taylor Compton Laboratories.

"We shall continue with confidence to seek the additional capital funds necessary for the construction of the nuclear reactor and the supporting funds for the educational and research programs to be housed in these new facilities."

The 1955 M.I.T. Alumni Fund will be devoted exclusively to the Karl Compton Memorial.

"More than \$275,000 has already been contributed to this year's fund," Mr. Ferguson told the meeting. "This sum," he added, "is already \$40,000 ahead of last year's total which was the record M.I.T. fund year to date."

Other speakers introduced by Mr. Stevens, who was master of ceremonies, emphasized the way basic research develops new products and services.

Mr. Barbour, whose company applies radioactive materials to research and industrial purposes, gave a graphical presentation of the basic properties of radiation and radioactive isotopes. He demonstrated a typical use in the continuous measuring and control of thickness in various materials.

Mr. Garth, whose company has begun to install its newly developed Photon photographic typesetting machine, discussed the potential impact of this revolutionary method of composition on the printing industry. The machine's productivity, versatility, and simplicity of operation were demonstrated with the Photon equipment now being used by M.I.T.

Dr. Dewey, whose company manufactures high-voltage electrostatic generators, described a modern irradiation facility and discussed some of its applications in various manufacturing processes. He reviewed current applications in cold sterilization and the irradiation of plastic materials. Dr. Dewey also suggested possible future applications in food preservation and the promotion of chemical synthesis reactions.

Kresge Auditorium Opens

A RECEPTION and concert for members of the Institute's Faculty was held at the newly completed Kresge Auditorium on the evening of Thursday, February 10. President and Mrs. James R. Killian, Jr., were hosts on this occasion which provided members of the Faculty their first opportunity to inspect the new auditorium. Members of the Faculty had opportunity to meet Dr. and Mrs. James M. Faulkner, and Mr. and Mrs. Francis E. Wylie. Dr. Faulkner, Dean of the Boston University School of Medicine, has been appointed medical director at M.I.T. His appointment becomes effective in July. Mr. Wylie has been at the Institute since January 1 as director of public relations, as recorded in the December, 1954, issue of *The Review*.

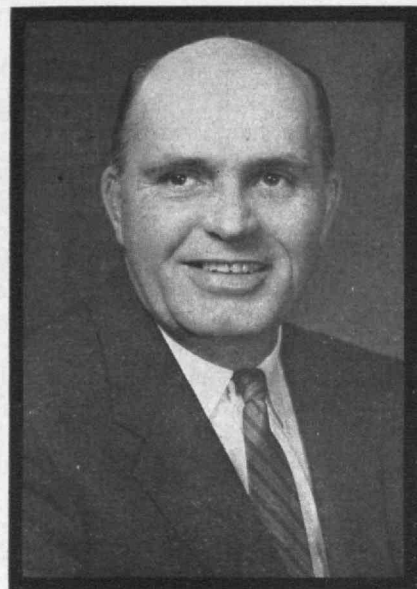
Dedication ceremonies of the new Kresge Auditorium and Chapel will take place on Sunday, May 8. *The Review* plans to bring to its readers a report on these ceremonies, and to present in its June issue details concerning the architectural structure and intended use of these excellent new facilities.

IVAN J. GEIGER, Assistant Professor of Physical Education and Director of Athletics at M.I.T., died suddenly at his home in Newton on January 12. Professor Geiger came to M.I.T. as its first Director of Athletics in 1947 from the United States Coast Guard Academy at New London.

Professor Geiger was born in Bluffton, Ohio, and in 1932 received the degree of bachelor of arts from Bluffton College. The following year, after additional training in health and physical education, he was awarded the degree of bachelor of science at Ohio State University.

His coaching and physical education career began in the schools of Van Buren, Ohio, where in 1937 he was promoted to director of athletics and physical education. Professor Geiger entered the Coast Guard service in 1942 as lieutenant junior grade. In 1945 he was appointed executive officer of physical education and intramural athletics at the Coast Guard Academy—a post which he continued to hold after retiring in 1946 with the rank of lieutenant commander.

The author of numerous articles, he won national recognition within his profession for a three-year experimental program in coeducational physical education for upperclassmen in the Van Buren schools. He was a member of the College Physical Education Association and the National Association of Health, Physical Education and Recreation.



M.I.T. Photo

Ivan J. Geiger
Director of Athletics at M.I.T., 1947-1955

Automation Explanation

MOTION pictures on "M.I.T. Automatic Control Research" and an active discussion period on automation in industry provided the principal focus of interest of the 307th meeting of the Alumni Council. The dinner meeting, held on the evening of Monday, January 24, at the M.I.T. Faculty Club, was attended by 159 members and guests. Hugh S. Ferguson, '23, President, opened the Council meeting by introducing Godfrey L. Cabot, '81 (whose 94th birthday occurred on Saturday, February 26), Francis E. Wylie, recently appointed Director of Public Relations, and Walter Humphreys, '97, Honorary Member of the Alumni Council.

As Secretary of the Alumni Association, Donald P. Severance, '38, announced changes in class affiliation for seven Alumni. Programs for Regional Conferences in Dallas on January 29, and in Cleveland on February 26 were also announced. Fifteen members of the Institute's staff paid visits to 15 alumni clubs in the United States between November 3, 1954, and January 17, 1955. In addition, Professor Norman J. Padelford, of the Department of Economics and Social Science, visited the M.I.T. Club of Great Britain in London on December 6, Professor Paul M. Chalmers, Associate Director of Admissions, was in Havana on December 11, and H. E. Lobdell, '17, Executive Vice-president of the Alumni Association, paid one of his frequent visits to M.I.T. clubs in Monterrey and Mexico City on December 22 and 23. Also announced by the Secretary were nominations of the National Nominating Committee, as recorded in a separate item on page 245.

Frederick B. Grant, '39, chairman of the Midwinter Meeting Committee, reported that early returns indicated a large attendance for the February 3d meeting in Walker Memorial. (See report on page 246.)

Theodore T. Miller, '22, chairman of the Alumni Fund Board, reported that, as of January 24, the

sum of \$264,000 had been contributed by 6,790 Alumni. This amount, which will be devoted exclusively to the Karl Taylor Compton Laboratories, exceeds by \$30,000 the final Alumni Fund contributions for last year, reached on June 30, 1954.

A letter received from Chang T. Chien, '22, President of the M.I.T. Club of Taiwan (Formosa), was read as indicating the appeal which the Compton Memorial Fund is making to Technology Alumni.

Gordon S. Brown, '31, Head of the Department of Electrical Engineering, was then called upon to relate steps in the production at the Institute of the film "M.I.T. Automatic Control Research" which was made by the Columbia Broadcasting System for its television program "The Search." The film showed a number of Technology staff members who described: (1) a demonstration model of a device built to move toward a source of light; (2) the Whirlwind computer; (3) equipment demonstrating the principle of feedback; and (4) milling machine controlled by prepunched tapes and associated computing devices. Dealing with the principles and potentialities of automation, the film ended with an informal scene in which James R. Killian, Jr., '26, President, made a statement that the adoption of automation in industry need produce no fears of social or economic upheaval if new automatically controlled devices are used understandingly and in a benign manner. President Killian warned that new kinds of automatic machines will require that students be trained with breadth of understanding of the social implications of the new instrumentalities of technology.

A question and answer period followed the showing of this film. Questions asked by members of the Alumni Council were answered by the four principals of the film: Professor Brown; Norbert Wiener, Professor of Mathematics; Jay W. Forrester, 6-45, Director of the Digital Computer Laboratory; and James O. McDonough, '43, Project Engineer, Numerical Control of Machine Tools.

"Double Major" Course

ESTABLISHMENT of a new type of double major course in which undergraduates at the Institute may combine studies in science or engineering with humanities and social sciences was announced in January by James R. Killian, Jr., '26, President. For the first time it will be possible for a student to obtain a bachelor of science degree from the Institute by qualifying in both liberal arts and technological fields. The new plan of study, known as Course XXI, will be open to freshmen entering M.I.T. next fall.

Students choosing the course will not only be required to take two years of calculus and two years of physics, as are all M.I.T. undergraduates, but will do advanced work in technological subjects and in the humanities and social sciences. They will have a wide choice of such varied electives as "The Bible," "The Nature of Poetry," "The Philosophy of Science," and "Public Finance."

The chief purpose of the course, according to John E. Burchard, '23, Dean of the School of Humanities and Social Studies, will be to provide broad preparation for graduate work in science, medicine, law, industry or other fields, or for nonprofessional careers starting immediately after graduation. The student can obtain a degree in four years or, if he chooses, can continue his work through a fifth year to achieve professional status with a second S.B. degree. By a sixth year of study he can qualify for the master of science degree.

The course will be given under the Department of Humanities, which is headed by Howard R. Bartlett, Professor of English and History, and will be directed by John M. Blum, Associate Professor of History. But although the classes will be in the School of Humanities and Social Studies, subjects will cut across various fields, combining the viewpoints of history, literature, economics, sociology, psychology, and other disciplines.

"There is no trend toward changing M.I.T. to a liberal arts university," Dean Burchard said. "The Institute will continue to emphasize science and engineering. Most of the undergraduates undoubtedly will continue to major in specialized subjects, preparing for specialized graduate study or for positions in laboratories and industries immediately after four years of schooling . . . we believe that the course will provide the preparation that is needed by every citizen for intelligent participation in the kind of world we live in today."

Dean Burchard said it has not been decided how many freshmen will be admitted to the course next fall or how many will be admitted in later years, but the first students will be limited to a relatively small group with proven ability to meet the rigorous demands of a double major.

Course XXI is the outgrowth of Faculty studies in the M.I.T. curriculum that have been going on for a number of years. In 1944 a new humanities program was inaugurated. In 1949 a Committee on General Education, headed by Thomas K. Sherwood, '24, Professor of Chemical Engineering, recommended extension of the humanities and social sciences program.

Course VI Curriculum Revised

A GRANT of \$50,000 from the General Electric Educational and Charitable Fund to aid in a fundamental revision of undergraduate electrical engineering education at the Institute has been announced by C. Richard Soderberg, '20, Dean of the School of Engineering. The grant will aid Gordon S. Brown, '31, Head of the Department of Electrical Engineering, to develop stimulating new instructional methods, materials, and techniques based on new concepts of teaching electrical engineering. In announcing the grant Professor Soderberg said, in part:

The Institute's Department of Electrical Engineering has a long record as a pioneer in developing educational methods in its field. From its early beginning as an option in physics in 1882, it awarded the first degrees in electrical engineering in the country in 1885. It was established as a department in 1902. Revision of the curriculum now calls for a break with tradition in every instance in which methods based on the heritage of the past no longer keep pace with or anticipate fundamental advances in the progress of modern science and engineering. . . .

Dr. Brown is working on this revision with the conviction that during their educational period students should be constantly confronted with the problems of tomorrow as well as the problems of today. It will be his aim to establish a unique system of classroom and laboratory instruction. . . .

The grant from the General Electric Educational and Charitable Fund will make it possible to study a new synthesis of classroom and laboratory material, documentation of new material in the form of classroom notes and texts, the development of new techniques of laboratory instruction and the assembly of a teaching staff with exceptional qualifications for achieving the goals of the new curriculum.

Shipping News

ON May 20, 1954, five members of the Visiting Committee on the Department of Naval Architecture and Marine Engineering met with representatives of the Department and of the Institute's Administration.* The Committee was pleased to note that all recommendations contained in Visiting Committee reports of the last three years had been carried out with excellent results, and that a recent appropriation will enable the Department to obtain photoelastic analysis instruments, a strain indicator, and supplies for the Ship Structures Laboratory. Development of this laboratory will increase the Department's teaching facilities by means of laboratory experiments and will extend the Department's research program.

The Committee was greatly interested in the recent expansion of the XIII-A curricula to include a fifth option, Nuclear Propulsion. This option provoked considerable discussion in which James R.

(Continued on page 250)

* Members of this Committee for 1953-1954 were: Robert C. Sprague, '23, chairman, Joseph V. Santry, '06, Irving W. Wilson, '11, Homer N. Wallin, '21, David A. Wright, '38, Thomas D. Cabot, Hollinshead de Luce, W. Durward Leggett, Jr., and Solon B. Turman.

BUSINESS IN MOTION

To our Colleagues in American Business ...

The assembly shown here is the actuating mechanism of an overload device, used to interrupt the current of electricity when it exceeds a certain value. Thus, it protects the apparatus connected to the lines with which it is associated. Naturally, the contacts are of copper, since copper has the highest electrical conductivity of any commercial metal. You will note the special forms of the two contact blocks. These are supplied to the manufacturer as extruded copper shapes, so that to make the contacts it is necessary only to cut pieces of the right length from the extrusion delivered by Revere, and drill the holes.

This method of slicing parts off a pre-formed shape can provide important economies by greatly reducing machining time. Take the bottom angular contact, for example. During development work this piece was milled from solid copper bar, dimensions 1 x 2 inches. The bar weighed 7.75 pounds per foot, and in machining it to the required form, 1.8 pounds of scrap per foot were generated. Copper scrap is readily salable at good prices, of course, but the chief expense in this operation was machining.

Once the design had proved itself under severe tests, Revere suggested copper shapes instead of plain bar. In the case of the angular contact, use of an extruded shape saved 1.75 pounds per foot, a reduction in weight sufficient to save almost 44 cents per foot over the plain bar. Larger savings were made by the reduction in machining time, and in the

labor involved in handling scrap. Production also was speeded up. Though the shape cost more per pound than the bar, it made possible economies that much more than absorbed this.

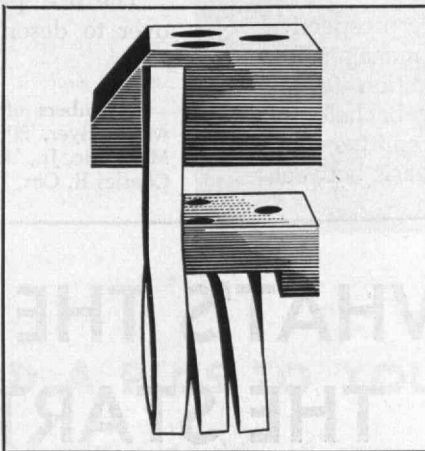
- Another example, not illustrated here, has to do with an electronic device. The base plate must be non-magnetic, and brass was chosen. The design was rather simple, and one would not usually suppose that a special extruded shape would save money. However, to produce the part from solid bar, which

weighed 1.61 pounds per foot, required three separate operations. The extruded shape weighs 1.22 pounds per foot, and its use reduces machining to a single operation. Result: a saving of 15 cents per part.

- These two examples are taken from the Revere files, which contain remarkable evidence of the economies that can be realized through extruded shapes. If your plant is doing any extensive ma-

chining of plain bar in copper and copper-base alloys, or aluminum alloys, look into extruded shapes. They can be furnished in much more complicated shapes than those illustrated, and can save important sums.

If you do not work with any of the Revere Metals, but with other materials, we suggest you get in touch with your suppliers and see if they may not be able to find ways to save you money. In buying, please remember that it is not the cost per pound or ton or gallon that is important, but the cost of the finished item. Sometimes paying a little more for materials may make the end product cost less.



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THE INSTITUTE GAZETTE

(Continued from page 248)

Killian, Jr., '26, President, and C. Richard Soderberg, '20, Dean of the School of Engineering, took a major part. In view of the Institute's plans to build on its campus an unclassified research nuclear reactor and the Department of the Navy's interest in the development of nuclear-powered submarines and large surface craft, in addition to the general interest of the commercial shipping industry, the Committee was of the unanimous opinion that a sound introductory course in Nuclear Physics should now be offered as an elective to graduate students, and that the building of such a reactor should be wholeheartedly supported.

Another matter considered by the Committee was the recent establishment of the degree, master of science in Shipping and Shipbuilding Management, to be awarded to students satisfactorily completing the five-year Course XIII-B. With the establishment of this new curriculum, Course XIII-C, Marine Transportation, which has been suspended for some years, will definitely be discontinued.

After consideration of the competence prospective students would acquire in the areas of management, administration, and economics, in addition to the technical competence acquired by the bachelor of science degree in Course XIII, the Committee thoroughly discussed the difference in emphasis between

the former Course XIII-C and the new Course XIII-B. The Committee agreed unanimously that the new course would be of the greatest value to students, if the management and economics courses were specifically related, in so far as practical, to the shipping and shipbuilding industries.

The Committee's report was submitted to the Corporation at its meeting on June 11, was reviewed by the Executive Committee on September 17, and was released for publication in *The Review* on September 29, 1954.

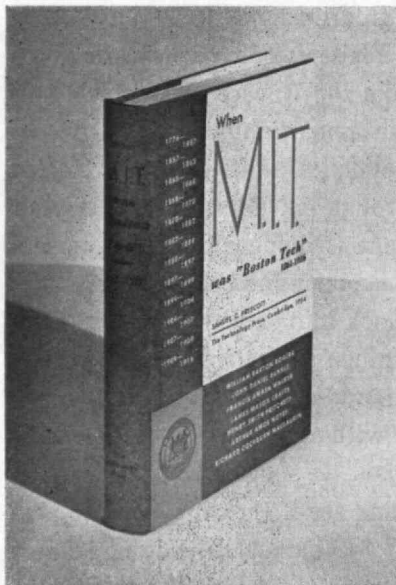
Metallurgical Programs

THE Visiting Committee on the Department of Metallurgy^{*} met on March 2, 1954, in the Given Room with Professor John Chipman, Head of the Department, and other members of the Department. Members of the Administration joined the group at the luncheon and afternoon meeting with Dr. Chipman. The report of the Visiting Committee, reviewed at the June 11 meeting of the M.I.T. Corporation and the September 17 meeting of the Executive Committee, was received for publication in *The Review* on September 29, 1954.

The first part of the morning session was given over to descriptions and discussions of the under-

(Continued on page 252)

^{*} Members of this Committee for 1953-1954 were: Edwin D. Ryer, '20, chairman, Irving W. Wilson, '11, Howard H. McClintic, Jr., '19, Edwin D. Martin, '22, Cyril S. Smith, '26, Charles R. Cox, Isaac Harter, and Kenneth D. Mann.



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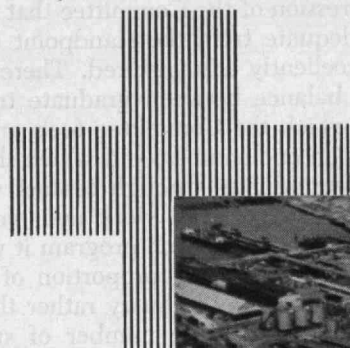
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GEARS

THE INSTITUTE GAZETTE

(Continued from page 250)

graduate, graduate, and research programs. It was the impression of the Committee that these programs were adequate from the standpoint of content and were excellently administered. There appears to be a good balance between graduate training and research, which the Committee feels are mutually dependent on one another, and which should stimulate the undergraduates through contact with successful graduate and research work and workers. In connection with the research program it was pleasing to find that an increasing proportion of the work was being sponsored by industry rather than by government and that a large number of smaller projects are being carried out rather than a few large programs. This appears to be a very healthy condition. One of the Committee members called attention to the importance of further fundamental research in the field of brittle fracture in ferrous metals. A sponsored program in this field would be most desirable. The Committee felt that careful thought should be given to ways and means of interesting potential users of sponsored research in the facilities available in the Department and stressed the importance of dignified publicity in this respect.

An excellent presentation of the opportunities in Metallurgy was made to the students at the Institute
(Concluded on page 254)

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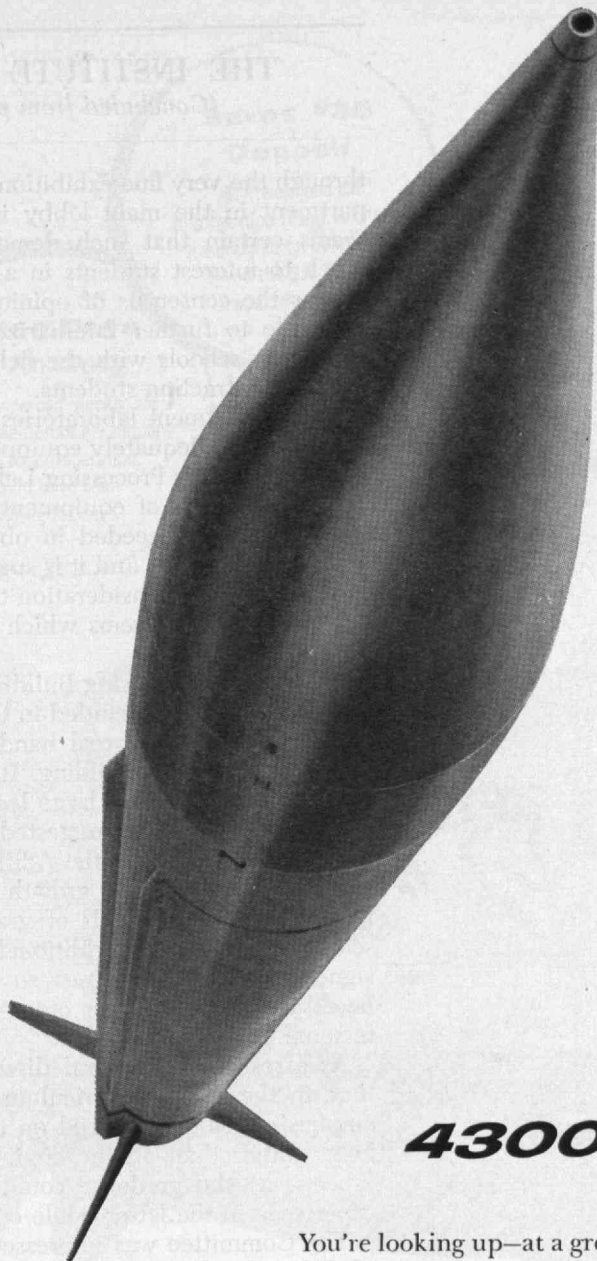
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THE INSTITUTE GAZETTE

(Concluded from page 252)

through the very fine exhibition arranged by the Department in the main lobby in February, 1954. It seems certain that such demonstrations would do much to interest students in a metallurgical career. It was the consensus of opinion that efforts should be made to further familiarize science teachers in secondary schools with the field of metallurgy as a means of attracting students.

The Department laboratories, in general, were reported to be adequately equipped, the one exception being the Metals Processing Laboratory where a few additional pieces of equipment would be desirable. The staff has succeeded in obtaining much equipment from industry and it is suggested that the Institute give serious consideration to the purchase of the needed additional items which do not appear to be otherwise available.

The Metals Processing Building is still without the passenger elevator included in the original plans and this appears to be a real handicap to the students and staff using this building. It was also noted that air conditioning in the large lecture room would be very desirable. It is suggested that these requirements be reviewed by the Administration of the Institute. The continued growth of the Department, particularly in the fields of graduate work and research, indicates that additional areas should be assigned for these purposes so that it will not be necessary to work under cramped conditions which to some extent now prevail.

As a result of a general discussion it was agreed that, in the general curriculum of the Department, emphasis should be placed on the science of metallurgy rather than on the engineering and practical aspects, as the graduate could more easily obtain experience in the latter while employed in this field.

The Committee was impressed by the enthusiasm of the staff and their very real interest in all of the problems of the Department. There was much evidence of co-operation among the members. While there are not many of the senior staff members nearing the retirement age, years pass rapidly and the Committee feels that it is important to bring into the Department young men who will grow to the same stature as those now occupying the key positions in the Department.

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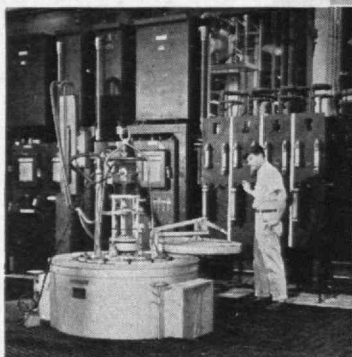
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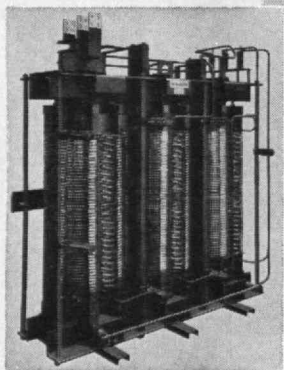


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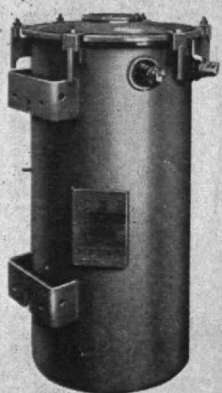
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LIMITATIONS OF LOGIC

(Continued from page 236)

sign — involves a progression from those areas where the development of the informal faculties is difficult and requires rather extreme measures, to those areas that involve art as well as science and which, therefore, are admirably suited to such development.

We should, instead, adopt a *vertical* concept of engineering education which, without primary concern over the "prerequisite" character of the treatment of material, tends toward the simultaneous development and constant interchange of both the logical and the informal faculties. We should — to oversimplify — establish a number of vertical stems such, for example, as science (including mathematics), engineering science (mechanics), engineering (design), engineering management, and humanities; and these stems should, in general, start at the beginning of the first year and extend during the entire four years; these vertical stems would be chosen not only for the importance of their subject content, but with particular reference to their suitability as vehicles for developing the total process of thinking.

If the vertical concept of education were adopted, it would give us an instrument that was capable of being used to develop the informal as well as the logical faculties of our students; the extent, however, to which it actually produced that development, would still depend on how the instrument was used — on the quality and type of teaching.

In a sense, the only true education is self-education; and we should remember this — not only because of its importance to formal education, but with a view toward the continuing education of the student after graduation; one of our objectives should be that of developing his ability and desire to continue with learning as a habit of living. Thus, while the instructor should guide and inspire, the student should be given the opportunity to work on his own, to discover for himself, to examine and develop his own ideas. More time should be available for the student to discuss his work and his ideas with his instructors, for student participation in classroom work, and for group or class discussions of subject matter and student solutions. If this type of teaching requires a drastic reduction in formal coverage, let us accept it; for to what purpose is the acquaintance with things unless a man has the understanding to profit from it?

As a possible example of an elementary educational experience designed to develop the informal as well as the logical faculties, let us suppose (for the purpose of general illustration only, and not as a basis for detailed criticism) that a relatively small group of first-year civil engineering students — say 15 — were given similar topographic maps showing a strip of highway with an obviously poor location, and were required, with a minimum of preliminary instruction, to work out a new location of the highway between two specified limits. The problem would be worked out in the drafting room with an instructor present who, however, would serve only to engage the students in provocative personal discussions as seemed desirable, and would restrain himself from showing

(Continued on page 258)

THE TECHNOLOGY LOAN FUND BOARD

Report for the Year 1954

For the sixth calendar year since the war, new loans made exceeded repayments on outstanding notes, these totals being \$321,505 and \$111,038, respectively. By the end of December, 1954, 2,700 individuals — or 69% of the 4,226 receiving loans since the Fund was established in 1930 — had completely discharged their financial indebtedness to it. The data presented below summarize the Loan Board's transactions during 1954 together with cumulative figures for the past 22 years.

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CUMULATIVE RECORD OF THE TECHNOLOGY LOAN FUND TO DECEMBER 31, 1954

	<u>At December 31, 1954</u>	<u>At December 31, 1953</u>	<u>Net Changes during 1953-1954</u>	
ITEMS OF OUTGO:				
Number of Men Receiving Loans	4,226	3,976	up	250
Total Amount Loaned	\$3,245,518	\$2,924,013	up	\$321,505
Average per Capita Loan	\$ 768	\$ 735	up	\$ 33
ITEMS OF INCOME:				
Number of Men Whose Indebtedness has been Completely Discharged	2,700	2,591	up	109
Principal Repayments in Advance	\$ 686,192	\$ 660,908	up	\$ 25,284
Other Principal Repayments	<u>\$1,462,466</u>	<u>\$1,376,712</u>	up	<u>\$ 85,754</u>
TOTAL PRINCIPAL REPAYMENTS	\$2,148,658	\$2,037,620	up	\$111,038
Total Principal Matured, Considering "Advanced Repayments" as Matured When Paid	\$2,185,684	\$2,071,978	up	\$113,706
Collection Ratio, i.e. Percentage of Total Maturities Paid	98.3	98.3		—
Matured Principal in Arrears	\$ 27,400	\$ 24,782	up	\$ 2,618
Actual "Written Off" Accounts	<u>\$ 9,627</u>	<u>\$ 9,577</u>	up	<u>\$ 50</u>
TOTAL MATURITIES UNPAID	\$ 37,027	\$ 34,359	up	\$ 2,668
Percentage "Written Off" to Total Loans	0.29	0.33	down	0.04
Percentage Matured Loans in Arrears plus Amount "Written Off" to Total Loans	1.14	1.17	down	0.03
Interest Received	\$ 259,791	\$ 250,379	up	\$ 9,412
Times Interest Received to Matured Loans in Arrears plus Amount "Written Off"	7.0	7.3	down	0.3
NOTES OUTSTANDING	\$1,087,234	\$ 876,816	up	\$210,418

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LIMITATIONS OF LOGIC

(Continued from page 256)

how and why things should be done. Each student would work out the best solution of which he was capable, using judgment, imagination, and intuition as his most important creative faculties, but supporting them by logic (including science and mathematical analysis) to the extent that he could.

At some later time — the next exercise, perhaps — each student would present and defend his solution, and there would be discussion of the merits and the weaknesses of the various solutions, together with some mention of those areas of knowledge that might have contributed to better solutions — given direction, as necessary, by the instructor, but carried out principally by the students. There would be no special emphasis on any one "correct" solution, such, perhaps, as might have been worked out previously by the instructor himself. It should be noted that the limited knowledge of the first-year student makes it easier rather than more difficult to devise problems which, for him, require the use of the informal faculties. With the increasing maturity and scientific proficiency of the student, the engineering problems would progressively depend less on art and more on science — but they would always include at least one or more elements that demanded the use of the informal faculties.

For years, it has been generally believed that, since engineering includes applications of science and mathematics, it is necessary that substantial education in science and mathematics precede education in engineering proper. The adoption of a vertical system of engineering education implies some reversal of this viewpoint, since it would involve, to some extent, the introduction to science through art, rather than to art through science. Such an inversion seems to have much in its favor, quite aside from its aid to the promotion of the informal faculties: It recognizes the principle that in education, as in any process using the mental faculties, one should acquire an approximate concept of the total before he attempts to fully understand its parts. For the student beginning his engineering education, this is extremely important; if it were recognized as a principle of engineering education, it would lend perspective and interest to the further study of engineering; it would develop motivation and balance for the study of science and mathematics; and it would, at the same time, encourage the student to think in

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the broader spheres of function, economics, and social impact as he approached engineering problems — thus pointing up the fact that portions of the humanities are not a thing apart from engineering but, indeed, part and parcel of the total problem. These supplementary advantages derived from art as a springboard to science suggest that a strong case can be made for broadening the base of the engineering stem during the first year.

Lest there be some who leap to the conclusion that the proposed approach to engineering education would be but a retrogression to vocational training, the writer insists that this is not the case — that, at least, it will not be the case if the introduction to engineering is properly taught. The art would not be introduced for its own sake, but it would be used as the most effective instrument for developing the informal faculties, for lending perspective to the further study of engineering, for developing motivation for the study of science, and for creating a favorable climate for the study of the humanities.

The relative merits of the vertical system of engineering education as compared with the horizontal, may vary somewhat within the total scope of engineering. The writer has been primarily concerned with civil engineering, in which he believes the development of the informal faculties to be both promising in terms of educational feasibility, and important to the needs of professional practice. While the feasibility of the proposed approach, if applied to education in the other branches of engineering, can be best appraised by others, it would appear that both the importance of the informal faculties, and, therefore, the limitations of logic by itself, pertain to the entire engineering profession.

Behind this whole presentation, there is a plea for a re-examination of certain of our educational values. There is the direct invitation to weigh the relative importance of logic as compared with judgment, imagination, and intuition. There is a request that the merits of the horizontal concept of education — based on the prerequisites of knowledge, be balanced against those of the vertical concept — based on the co-requisites of mental development. But there is more than this; there is, in essence, an appeal that values in education be based, not on glamour, not on current popularity, not on curriculum content as such, but — in substantial measure — on the degree to which an educational experience develops those qualities that are deemed most essential in meeting the problems of life itself.

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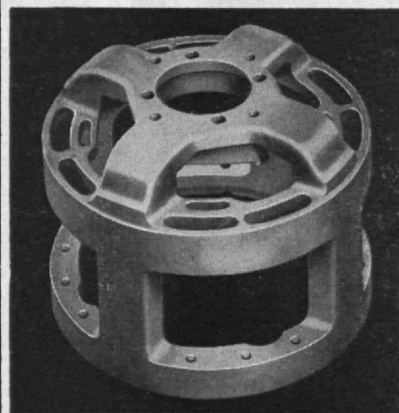
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THE GREAT CONVERSATION

(Continued from page 244)

1. The secondary schools should take over more of the liberal arts training now given in college. "College Preparatory" courses should really prepare one for college. Under the title "Prescribed Mediocrity," *Time* in its issue of December 13, 1954, presented the views of John Latimer as follows:

Has the U.S. high school embarked on a retreat from solid learning? Absolutely, says Classicist John Francis Latimer of George Washington University. Latimer feels that he has evidence to prove his point. Among the results of a poll he took of 104 public-school systems in 44 states:

The number of secondary students studying languages has dropped from three out of four in 1900 to one out of four today. French has dropped from 8% to 5%, German from 14% to 1%, Latin from 50% to 7%.

In 1900 at least four out of five students took mathematics. Today fewer than half the students do, and of these, 13% are taking "general mathematics," which Latimer calls "a preparation for nothing, as far as college is concerned." Biggest slump: algebra, down from 56% to 20%.

Since 1948 the sciences have dropped 8%, and in spite of all the hoopla about atoms, physics has suffered most. In 1900 four out of every 20 students took physics. Today's count: one out of 20.

What is taking the place of these traditional courses? Points out Latimer: "Group action subjects" which the student can often bull his way through without cracking a book. "We have gotten away from individual effort . . . By permitting the high schools to become the vocational bargain basements of education, we have insulted the student's intelligence and encouraged mediocrity by prescribing mediocre subject matter as an incentive for mediocre minds."

2. In technical schools the humanities should be optional. There is no demonstrable proof that they ever made men more democratic. I am quite sure that Davy Crockett was every whit as patriotic as Thomas Jefferson — and a better shot. Love of freedom, I believe, is an innate burgeoning, and needs no didactics, anymore than it requires a traditionalist to stand before a bush in the springtime, holding out one of last year's withered leaves as a model. Dr. Hutchins, in one of his less happy phrases has said that liberal arts education should be "interminable." I agree with him — and also with Plato, who thought

(Continued on page 262)

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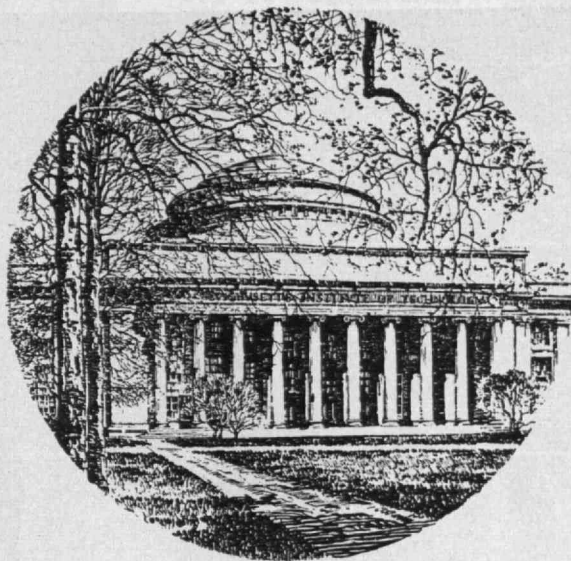


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THE GREAT CONVERSATION

(Continued from page 260)

that the study of philosophy should begin around 40. There are now 102 colleges giving evening courses; and in its issue of November 15, 1954, *Time* reported that "in 1952-53, the Ford-sponsored Fund for Adult Education spent more than \$9,000,000 on every sort of project, from the American Library Association's American Heritage Program . . . to the Great Books Foundation's seminars . . ." There are no grounds for the slightest fear of culture withering away. But this is true: only in a college can a boy get technical laboratory training, and if he doesn't get it early, he is not likely, or able, to come back for it.

3. In this crisis, we should offer inducements to prospective engineers. In Russia, very serious efforts are made to find technological talent; engineering students are exempt from military service, since in Russia engineering *is* military service, and the nation offers cash subsidies to students of technology. Our government might put engineering and scientific training on the same footing as West Point and Annapolis; selected students would be enrolled in any of the fine technical schools we have and given cash allowances, with the proviso that upon graduation, they will serve an allotted time in government service. The method of awarding scholarships in our colleges should be revised as far as possible. Less emphasis should be on brilliance, more on financial need.

4. We should consider a degree, possibly for two years of study, that would qualify recipients to serve as technicians. Many engineers perform chores below their skills, simply for lack of technical personnel.

5. We should restore the honor and prestige of the scientific calling, now sunk to such a low, that Albert Einstein, in a letter to *The Reporter* (November 18, 1954) says: "If I would be a young man again and had to decide how to make my living, I would not try to become a scientist or scholar or teacher. I would rather choose to be a plumber or a peddler in the hope to find that modest degree of independence still available under present circumstances." He is obviously oppressed by the excessive badgering to which scientists today are subject.

Needed is the recognition that science offers not only frontiers to be explored, but also the virginal beauty of a poem read for the first time. As Nobel

(Continued on page 264)

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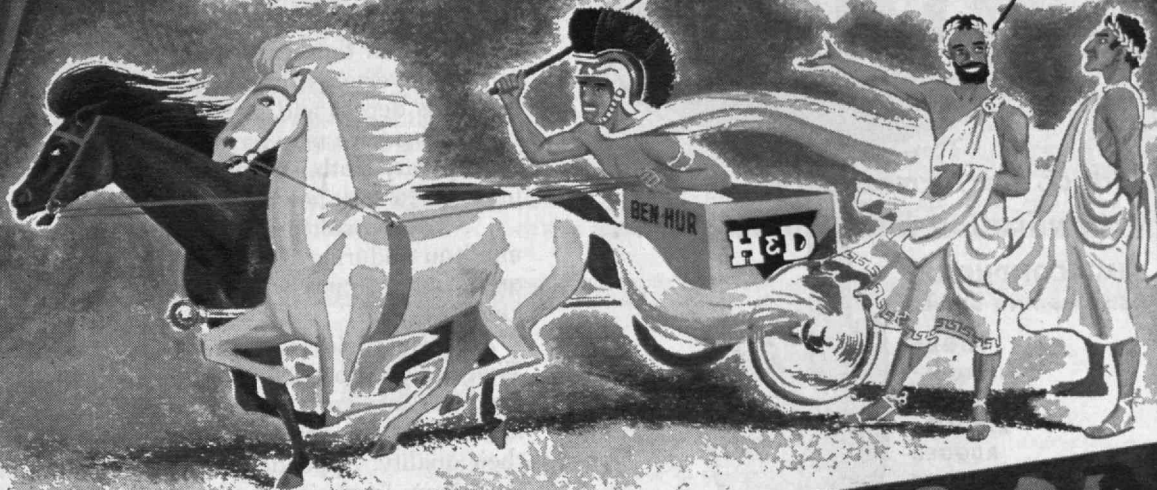
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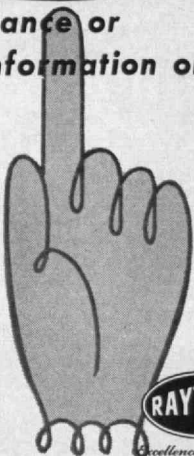
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THE GREAT CONVERSATION

(Continued from page 232)

prize winner Sir Edward Appleton expressed it in the *Bulletin of the Atomic Scientists*: "Perhaps the most striking fact about modern science, in its explorations ranging from the heart of the atom to the frontiers of the universe, is that, like poetry, like philosophy, it reveals depths and mysteries beyond . . . At any one moment we may have only a precarious hold on a temporary truth, and our consciousness of this ever urges us to seek new truths and new understandings . . . The pursuit of science presents to the human mind an enduring challenge on an endless frontier, quite apart from the material enrichment of mankind . . ."18

As this article is in preparation, the *New York Times* (November 29, 1954) announces that a grant from the Carnegie Corporation of New York has been made to M.I.T. for a study of Soviet scientists and their quality. Appended to the newspaper story is a local item: "Americans need not be fearful of reports that Russia is outpacing the United States in training engineers, Prof. Henry Wasser, acting co-ordinator of humanities at City College, said yesterday.

"The Soviet increase in engineer training, he said, is being achieved by eliminating the study of humanities from Russian technical schools. This, Dr. Wasser predicted, will result in creation of a class of 'pure' technicians lacking the broader wisdom needed to perform managerial and executive jobs. 'This may prove to be a factor in undermining Russian economy and industry,' said Dr. Wasser. He declared that education in this country tended to give engineering students more training in the humanities, and he warned against reversing this trend to match Russia's output of engineers."

I find it impossible to utter another word.

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2. *Thucydides: The History of the Peloponnesian War.*, page 110. Edited in translation by Sir R. W. Livingstone (New York: Oxford University Press, 1943).
3. "Today's Students," *The New Leader*, March 1, 1954.
4. *Time*, March 1, 1954.
5. "College Football Is an Infernal Nuisance," *Sports Illustrated*, October 18, 1954.

(Concluded on page 266)

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THE GREAT CONVERSATION

(Concluded from page 264)

6. Robert M. Hutchins, *The Conflict in Education in a Democratic Society* (New York: Harper and Brothers, 1953).

7. *Ibid.*, page 88.

8. *Ibid.*, page 18.

9. *Ibid.*, page 19.

10. *Ibid.*, page 83.

11. *Ibid.*, page 98.

12. *Ibid.*, page 86.

13. *Ibid.*, page 39.

14. *Ibid.*, page 79.

15. *Ibid.*, page 95.

16. *Ibid.*, page 104.

17. "Crown Princes of Business," *Fortune*, October, 1953.

18. *Time*, January 4, 1954.

GRASS

(Concluded from page 240)

ing it, too." Grasses can be grazed in the field, and they also provide hay to enable the farmer to feed his cattle at low cost throughout the winter. And surprisingly enough, the cost of fattening chickens for market can be reduced considerably by feeding nourishing grasses with other feeds. Well-fertilized grasses, packed with nourishment, can provide from 75 to 80 per cent of the feed for dairy cattle, as many wise farmers have already learned to their profit.

Today it is recognized that clean, cultivated crops take valuable soil nutrients and humus from the soil, while simultaneously diminishing its productivity and its tilth. On the other hand, grasses, including the legumes, build the value of farm land and, under proper fertilization, give America real hope for future farm prosperity. In drought areas where irrigation is a "must," few crops respond more profitably to the life-giving water than grass.

Thus while America has learned how to grow bumper crops, she has also learned they exact their price. Yet America's greatest bank is her soil, and just as idle money begets no progress or prosperity, idle land is likewise without dividends in national prosperity. In countless ways, grasses turn both the tired and idle earth into improved soil. What is more significant and vital, grass is a truly great bumper crop for not only the farmer but his land profits as well. Thus it is wise national leadership indeed that points to 1955 for a bumper crop of grass!

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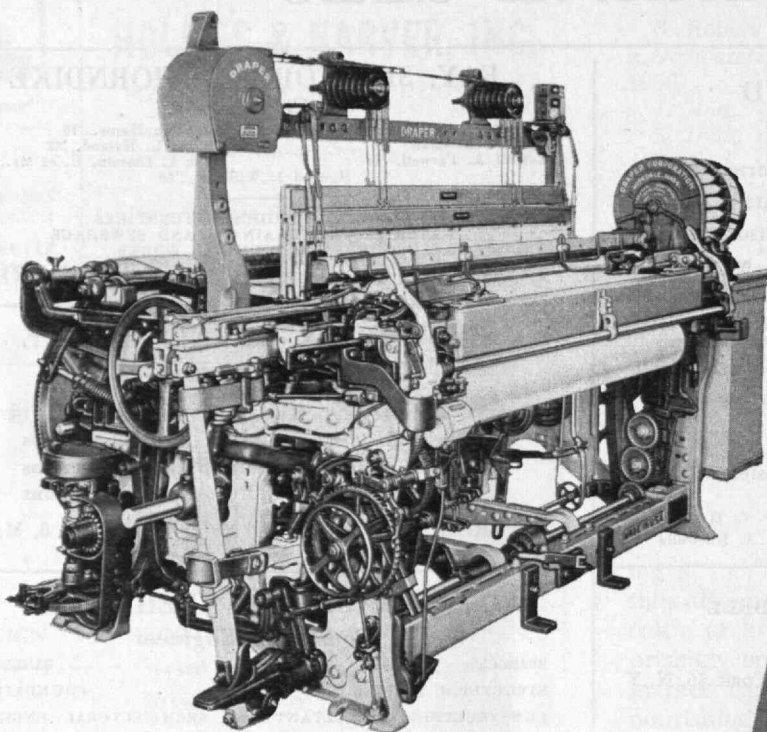
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Alumni AND Officers IN THE News

In the Limelight

Major LESTER D. GARDNER'98, was selected to receive the award of American Honorary Fellow for 1954 of the Institute of the Aeronautical Sciences.

ANNA GALLUP'01 received the William T. Hornaday Memorial Award accompanied by a citation for her "many years of distinguished leadership." Miss Gallup was with the Brooklyn Children's Museum (the first in the world so specialized) for 35 years.

Skidmore, Owings and Merrill, architects, have received from New York City's Fifth Avenue Association its biennial award for the best new building in midtown Manhattan—Lever House, with particular credit to GORDON BUNSHAFT'33.

SOLOMON BAKER'39, manager of the Fabricating Division of Rogers Corporation, Danielson, Conn., was the recipient of the 1955 Civic Achievement Award. The award is made by the Danielson Chamber of Commerce.

JOHN HERBERT HOLLOMON'40 of Niskayuna, N.Y., manager of the Metallurgy Department, General Electric Research Laboratory, was chosen by the National Junior Chamber of Commerce as one of America's 10 outstanding young men of 1954.

On the Move

JOSEPH POPE'08, Vice-president and Director of Stone and Webster Engineering Corporation, New York City, has been appointed to a one year term as a director on the Council of the American Society of Mechanical Engineers.

ROBERT C. ERB'17, President of J. F. McElwain Company, Nashua, N.H., was elected to the board of directors of the National Association of Manufacturers.

JOHN G. LEE'21 was named director of research at the United Aircraft Corporation.

JOHN C. MOLINAR'22 was elected vice-president and general sales manager of Niles-Bement-Pond Company.

ALBERT S. REDWAY'23 was elected president of the Manufacturers Association of Connecticut.

GEORGE Y. ANDERSON, JR.'24 has been appointed vice-president in charge of engineering of the Bucyrus-Erie Company, Erie, Pa.

WALTER E. HILDICK'28, former vice-president of Textron, Inc., and more recently vice-president of The United States Finishing Company, has been named treasurer of Curtis and Marble Machine Company, Worcester, Mass.

EDWARD R. STEVENS'28 has been appointed executive vice-president of the Baldwin-Hill Company, Trenton, N.J.

Colonel ROBERT J. FLEMING, JR.'31 has assumed command as division engineer of the New England Division, Corps of Army Engineers.

CLAUDE F. MACHEN'31 has been elected assistant to the president of the Boston Consolidated Gas Company.

LAURANCE D. SIBLEY'33 has been appointed vice-president of the combustion control division of The Electronics Corporation of America.

WILLIAM L. ABRAMOWITZ'35 has been named a vice-president of the chemical division of Borden Company. Mr. Abramowitz has been executive manager of Borden's Polycro Department at Peabody, Mass., known as the American Polymer Corporation before acquired by Borden.

J. ROBERT FERGUSON, JR.'37 has been appointed chief engineer, project development, United States Steel Corporation.

JAMES D. MCLEAN'37 was appointed vice-president in charge of sales of the Government and Industrial Division of the Philco Corporation.

OLIVER P. SWOPE, JR.'42 has been appointed vice-president for operations of the George F. Alger Company, of Detroit, Mich.

EDWARD R. ANDERSON, 10-44, has been elected a vice-president of American Brake Shoe Company. Mr. Anderson also continues as president of the Am-Forge division of the company.

KENNETH S. BROCK'48 has been named sales and advertising manager of Brown-Ing Laboratories, Winchester, Mass.

From the Faculty

The following appointments and reappointments from the Institute have been made to the 28 technical committees and subcommittees of the National Advisory Committee for Aeronautics for 1955:

Appointments: ROBERT C. DEAN, JR.'48, Assistant Professor of Mechanical Engineering; RENE H. MILLER, Associate Professor of Aeronautical Engineering; CHARLES N. SATTERFIELD'43, Associate Professor of Chemical Engineering; C. RICHARD SODERBERG'20, Dean of the School of Engineering and Professor of Mechanical Engineering.

Reappointments: HOLT ASHLEY, Associate Professor of Aeronautical Engineering; RAYMOND L. BISPLINGHOFF, Professor of Aeronautical Engineering; RICHARD H. BOLT, Professor of Acoustics and Director of the Acoustics Laboratory; CHARLES S. DRAPER'26, Professor of Aeronautical Engineering, in charge of the Department; NICHOLAS J. GRANT, 2-44, Associate Professor of Metallurgy; HENRY G. HOUGHTON'27, Professor of Meteorology, in charge of the Department; ARTHUR T. IPPEN, Professor of Hydraulics; CHIA-CHIAO LIN, Professor of Mathematics; JOHN R. MARKHAM'18, Professor of Aeronautical Engineering; ROBERT C. SEAMANS, JR.'42, Associate Professor of Aeronautical Engineering; GLENN C. WILLIAMS'42, Professor of Chemical Engineering.

Obituary

GEORGE A. ARMINGTON'87, November 19.
WILLIAM O. HILDRETH'87, December 9.
GEORGE B. HAWLEY'92, September 12.
RICHARD E. MESERVE'93, July, 1953.*
LATIMER W. BALLOU'95, November 29.*
ELMER L. WENGREN'95, October 15.*
JOHN E. GILMAN'97, December 15.
JONATHAN M. GILMORE'97, January 19.*
ALFRED H. CASPARY'98, January 7.
JOSEPH G. GOFFIN'98, November 6.
CLIFTON W. WILDER'98, August 15.
WALTER W. BONNS'99, November 8.*
W. SCOTT MATHESON'99, April 25.*
JOSEPH D. EVANS'01, December 9.
FREDERICK H. SEXTON'01, January 12.
FREDERICK H. WETHERALD'03, September 8.*
CLIFFORD B. WOODWARD'03, October 23.*

ALFRED H. JACOBS'04, December 14.
FRED W. SIMONDS'05, December 7.*
LAWRENCE F. BEDFORD'06, November 13.*
JAMES E. GRIFFIN'06, 1942.*
STANLEY C. LARY'06, 1952.*
LESTER D. CUSHMAN'11, January 8.*
HENRY W. HALL'11, January 1, 1948.*
ERNEST W. DAVIS'12, January 11.
PERRY G. BURLEIGH'13, December 12.*
LESTER F. HOYT'13, Date Unknown.
L. C. TOMLINSON'14, 1952.*
HENRY C. MORSE'16, February 16, 1954.
MELVILLE H. ROOD'16, December 1.*
MARSHALL J. ROOT'16, December 13.
MILTON W. PETTIBONE'17, January 17.
CHARLES L. LORD'18, April.
WARREN A. MAYNARD'19, January 8.*
ADOLPH DENBIN'21, December 27.
MRS. MALCOLM B. LEES'21, December 18.

LOUIS L. ROSEN'21, November 25.
WILLIAM T. MILLER'22, January 12.
REGINALD B. PARKHURST'22, Date Unknown.
WILLIAM E. AMES'23, March 14, 1954.
JAMES S. CRAWFORD'23, February 6, 1953.
JOHN E. LIND'23, January, 1954.
LEROY J. WHITE'29, November 11.
MRS. EVELYN B. HEWETT'31, December 23.
JOHN E. GUSTAFSON'32, January 5.
JOHN D. TOELLER'45, November 5, 1951.
WILLIAM R. FRAZER, JR.'46, December 1954.
JAMES F. HUTTO'46, December 26, 1953.
L. CORBIN EDDISON'49, December.
RICHARD M. HAYMAN'51, August 27.
ROBERT G. SCHMIDT'53, December 26.
HERBERT J. VASSIAN'53, September 12.
* Mentioned in Class Notes.

News FROM THE Clubs AND Classes

CLUB NOTES

Alabama

The annual meeting of the M.I.T. Club of Alabama was held December 16 at the Mountain Brook Club, Birmingham. Following a pleasant cocktail hour there was a brief business session, which included the report of the Nominating Committee. This Committee, consisting of Amasa G. Smith '29, David Thurlow '41, and Merrill E. Pratt '16, Chairman, presented as its slate for 1955, George J. Fertig '24 for president, and Nelson Smith '35 for secretary-treasurer; with insufficient opposition these nominees were duly seconded and elected. After dinner, Dean Edward P. Brooks '17 spoke to us informally on recent developments in the School of Industrial Management, which were of considerable interest to the group as was shown by the discussion which followed.

Members attending this meeting were Andrew E. Burnett '41, George J. Fertig '24, Charles B. Gamble, Jr. '34, Joseph L. Hammond, Jr. '51, Lawrence T. Haugen '23, Harold E. Keene, Jr. '49, Laurence D. Lusey, Kenneth M. McDonald '24, Julian B. McFarland '22, Merrill E. Pratt '16, James B. Preston '48, John W. Powers, Jr. '33, Felix Rapp, Jr. '54, R. C. Reidinger, Jr. '54, Stephen J. D. Rozendaal '49, Nelson Smith '35, David Thurlow '41, Arthur G. Wakeman '21, Fernand D. Weiss '13, Kevin G. Woelflein '54, and William H. Wright '38. — NELSON SMITH '35, *Secretary-Treasurer*, Brown-Marx Building, Birmingham 3, Ala.

Boston

The December meeting of the M.I.T. Boston Luncheon Club was held at the usual place, the Union Oyster House, at 12:15 P.M. on Thursday, the sixteenth. Our attendance was 81. Professor Roland B. Greeley spoke on "The City and the Suburb."

City planning is based on the thesis that our environment can be improved if we decide on our objectives and do not take the present environment for granted, as so many people do. About one half of the population of the United States now lives in metropolitan areas, with one quarter in the 12 largest of such areas. The outstanding fact that follows from this distribution of population is the growth of the suburbs. At the present time, roughly one quarter of the population lives in suburbs, and the proportion may rise to one half in another generation. The basic reason for the tremendous suburban growth is found in a change in technology. One hundred years ago, transportation inadequacies limited a metropolitan area to around 10 square miles. The advent of the railroads multiplied the useful area by 10, and the auto-

mobile has again applied a factor of 10, or to 1,000 square miles. A contributing cause to suburban growth has been the improvement in the economic status of the worker, which has enabled him to gratify his desire to own his own home and a plot of land. Since 1950 approximately 80 per cent of the new housing units built in the United States have been single homes.

The older suburbanites dislike the growth, for it has brought mass subdivisions and business and industry into their residential areas. Financial problems have been created by the necessity of providing facilities for the influx of new people and the accompanying jump in school population. Too often guesses on tax rates have influenced decisions on such matters as zoning, without any careful analysis of the problems.

What are the answers to all of these growing pains? No one knows as yet, because more research is needed. A few general observations may be made, however. One is that adequate parking areas must be provided and the costs are less in the suburbs than in the city. A second is that we must concentrate on circumferential, rather than radial, highways to ease our traffic problems. Route 128, for example, carries two or three times the traffic that the planners had expected. The circumferential principle has not yet been applied to public transportation like buses and rapid transit. A third observation concerns the concept of land and space. Striving to retain the rural atmosphere in the suburbs by larger lots, say of one to two acres, is ineffectual and could stifle the growth of the cities. It results in a "lighter gray" and not a truly open rural development. The answer seems to be to allow lots to be smaller but to preserve scattered, large open spaces, on the order of the Blue Hills and Middlesex Fells. Fourth, tax rates are a major motive but are unrealistic. Those who can will have to pay in the long run, and we must thus work for the most efficient land usage. And fifth, some integration of governmental functions between the central cities and the suburbs seems desirable, going beyond just parks and water service, even though Professor Greeley would not favor a tight concentration of all government in the hands of the city administration. — VINCENT T. ESTABROOK '36, *Secretary-Treasurer*, B. Standish Ayer and McKay, Inc., 50 Congress Street, Boston 9, Mass.

Chicago

On Monday evening, January 17, over 150 Alumni of the M.I.T. Club of Chicago and their wives assembled in the impressive reception hall of the offices of the R. R. Donnelley and Sons printing plant for a dinner meeting and plant visit. The event was the third in the interesting series of programs planned for the current year.

President Bob Wise '28 spoke for the members and guests, thanking the Donnelley Company for their hospitality. Messrs. Busby and Seymour of the Donnelley staff spoke briefly about their organization and the plants which we were to visit. It was pointed out to us that the company, which is one of the largest in its field, attributes its continued growth and continued success to its great emphasis on employee benefits and relations and on industrial engineering which stresses a bonus system for employees.

Following a visit to the offices and handsome library, the group moved on to the company dining room where the chef had outdone himself in preparing a roast beef dinner. Thus, being well fortified with food, we set out to visit the printing plant which prints a million copies of *Time* and four million copies of *Life* a week, in addition to many of the mail order catalogues and telephone books for 1,200 cities which the company prints.

Going through the plant we saw many of the huge presses which print using the three standard methods. Also seen were the huge five color presses and the machines for assembling the printed magazines. In the linotype department we watched type being set, both mechanically and by hand. As souvenirs of this department each guest received a copy of the Lord's Prayer printed in the area of one thirty-sixth of a square inch.

One of the highlights of the trip was the visit to the new plant which is devoted to the weekly printing of *Life* magazine. Here we had a preview of the issue to be published in the latter part of the week. Among the numerous ingenious machines was the one which wrapped the bundles of magazines which had been separated for shipment to different postal zones. All in all everyone thought the visit had been highly successful. It was not only interesting but several hours of walking through the plant certainly insured that all would sleep well that night. The thanks of those present are expressed to Virgil Otto who was in charge of arrangements for the meeting. — ROBERT S. FAUROT, 2-44, *Secretary*, 4115 Ogden Avenue, Chicago 23, Ill.

Milwaukee

Seven M.I.T. students were guests of the M.I.T. Club of Milwaukee at a luncheon on December 28 at the Wisconsin Club. This annual luncheon for students has proved to be an effective means to acquaint the guests with the opportunities for extension of the M.I.T. education in the industrial community. For the club members it is an opportunity to keep abreast of current student projects and interests.

The students at the luncheon were Harry Flagg '57, XV-A; Dean Karnopp, '56, II-B; Robert Linde '56, VI-A; John Lindenlaub '55, VI; John Lindner, Jr., G, VIII; Keith Maas '58, V; and Gerald Ryan

'57, X. All are from Milwaukee except Keith, who is from Burlington. Alumni at the luncheon were G. Y. Anderson'24, W. R. Bohlman'49, P. N. Cristal'17, Charles Haeuser'51, Arthur G. Hall'25, A. E. Jakel, 2-44, Maurice D. James'27, Harold Koch'22, Chester Meyer'36, Robert C. Montana'41, W. H. Schield, Jr., '46, C. L. Sollenberger, 10-44, Elton Staples'26, Fortney H. Stark, Jr., '53, E. E. Taylor'22, and Emerson J. Van Patten'24. — WILLIAM R. BOHLMAN'49, *Secretary*, 4675 N. 104th Street, Wauwatosa, Wis.

New York

The meeting devoted to the subject of titanium certainly measured up to the expectations one would have of this subject. Tom Lippert, of Titanium Metals Corporation, held his audience completely enthralled with his description of the astonishing growth of his industry. Tom also mentioned a few growing pains which certainly gave perspective to his subject. There is no doubt that the future of this metal will be paid for by the efforts being made. Ralph Wilts'41, Chairman of the meeting, had a bit of a problem himself when the attendance turned out to be exactly twice as many as the reservations he had beforehand.

On December 31, 1954, the Long Island Group held a dance in Westbury, Long Island, which was attended by 55 couples. The theme of this occasion was informality and many new acquaintances and friendships were formed. We would all like to see more affairs of this sort held. Both the Long Island Group and the New York Club benefitted from the affair since 10 new members were signed up. Henry S. Duncan'32 was the Chairman.

A group including A. E. Hittl'36, E. S. Goodridge'33, D. D. Spoor'22, G. Benson, S. W. Fletcher'18 are setting up an organizing meeting in Westchester. The first meeting will be held on February 24 at the Scarsdale Country Club. We look for this endeavor to meet with the same success it did on Long Island. Meanwhile, we are discussing with the M.I.T. Club of Northern New Jersey amalgamation with the M.I.T. Club of New York for the mutual benefit of both organizations. On February 2, 1955, under the Chairmanship of D. M. Broudy'22 we will hear from Professor Norbert Weiner and Professor Gordon Brown'31 on the Technological and Sociological Aspects of Automation.

The big formal occasion of the year, the Silver-Stein Banquet, will be somewhat later than usual. As a matter of fact it was decided to combine it with another more important function. The Institute is planning on a Karl T. Compton Memorial Dinner to be held at the Waldorf Astoria in April and the M.I.T. Club of New York was complimented with an invitation to sponsor this dinner in co-operation with the Institute. This will be a very important function for M.I.T. and we ask all of you in the area to make every effort to support the occasion with your attendance.

We wish to end this brief account of our activities in New York by announcing that our former president and present director, G. P. Grant'35, is resigning his connections with the M.I.T. Club of New

York to move to Cleveland, Ohio. After all the work that Pete has done for the Club over the past 10 years, he certainly will be missed. He was in a great part responsible for the recent resurgence in the activities of the Club. I am sure that the Alumni in Cleveland will profit from his enthusiasm. — M. R. MCGUIRE'41, *Secretary*, The Cooper-Bessemer Corporation, 25 West 43rd Street, New York 36, N.Y. JOHN E. PLANTINGA'45, *Assistant Secretary*, Meyer, Strong and Jones, 101 Park Avenue, New York 17, N.Y.

Long Island

The M.I.T. Alumni Club of Long Island, a recently formed sub-section of the M.I.T. Club of New York, held a dinner meeting on February 15, at 6:00 P.M. at the Roslyn Country Club, Roslyn, Long Island. The guest speaker was Rear Admiral Roy T. Cowdrey'23, U.S.N., Commander, New York Naval Shipyard. Admiral Cowdrey's topic was "The Place of the New Larger Aircraft Carriers in Modern Warfare." Admiral Cowdrey is one of the senior engineering officers in the Navy. His vast experience in ship design, repair and construction includes duty on Admiral Halsey's staff during the Pacific campaign and command of the Pearl Harbor Naval Shipyard. — HARVEY KRAM'42, *Secretary*, Roslyn, N.Y.

Northern California

On November 30, 1954, the M.I.T. Club of Northern California held a luncheon meeting at the New Delmonico Restaurant, 328 Sutter Street, San Francisco. A. B. Court'10 presented the following nominations for officers for the coming year: President: G. B. Hulett'34; Vice-president: Dick Perry'25 to represent the Peninsula and Wade L. Wetmore'02 to represent the East-Bay; Secretary: J. Howard Arnold'31, and Review Secretary: R. E. Keyes'40. The slate was elected. On behalf of Gaynor Langsdorf'32, Chairman of the Educational Council of Northern California, R. E. Keyes briefly explained the work going on in this area. The following Alumni were present at this meeting: W. L. Wetmore'02, E. J. Riley'09, A. B. Court'10, H. J. Berg'15, J. T. Nichols'22, Dick Perry'25, J. H. Arnold'31, G. B. Hulett'34, R. E. Keyes'40, C. E. Moffet'41 and Norman Rupp'47. The Club continues to meet regularly for an informal lunch at the New Delmonico Restaurant (address above) every Tuesday. Come when you can. — J. HOWARD ARNOLD'31, *Secretary*, 1058 Pamona Street, Albany, Calif. RAYMOND E. KEYES'40, 1637 Francisco Street, Berkeley 3, Calif.

Northern New Jersey

The M.I.T. Club of Northern New Jersey is presently experiencing a little hiatus in this year's activities, thus there isn't much to report to you at this time. Our last meeting was held on December 2, when we enjoyed a most interesting program on color television as reported in last month's column. The next meeting is scheduled for Wednesday, March 30, which will already have taken place by the time you read this. The program for this meeting has been tentatively set as a forum discussing the current problem of engineer's unions and their place within

the engineering profession. An officer of the Engineers and Scientists of America will present the union's point of view while a noted engineer and industrialist will present the professional engineer's point of view. A report on this meeting will be given in next month's column.

This year's program of the Educational Council is proceeding most satisfactorily. Several of the high and preparatory schools in this area have already sponsored college and career conference days at which the Institute was ably represented by some of our club members who are acting as Educational Counselors in their localities. One of the more recent of College Day Programs was that sponsored by St. Benedict's Preparatory School in Newark on Thursday, January 13. This annual event is usually covered by your Assistant Secretary, who is also an Educational Counselor. Unfortunately, he had to be out of town on business, but Stewart Coey, one of the Institute's Honorary Secretaries in this area, very graciously offered to fill in and did a truly wonderful job. (Many thanks again, Stu!) Participation in these various college day programs by educational counselors is strongly encouraged since it helps immensely in bringing the Institute in closer relationship with the secondary and preparatory schools.

That's all the news for this month. Hope to see you all at the March 30 meeting at the Suburban Hotel in East Orange. — STUART G. STEARNS'39, *Secretary*, 25 Elmwood Place, Short Hills, N.J. JOHN T. REID'48, *Assistant Secretary*, 80 Renshaw Avenue, East Orange, N.J.

Rochester

"Eastman is 'Mr. Smith'." So exclaimed the headlines of *The Tech* of the morning of January 10, 1920. Behind these headlines was one of history's most amazing stories of anonymous benevolence — the story of a man who "wanted to see a good thing done without it being talked about" — the story of a man who gave \$20,000,000 to a school he never attended.

As part of a series of commemorative celebrations this year, the 100th anniversary of the birth of George Eastman, the M.I.T. Club of Rochester was anxious to join in the celebrations, for to few other groups did the work of George Eastman mean so much. His gifts not only made possible the Institute move from Boylston Street in Boston to its present site in Cambridge, but they changed it from largely a local school to an institution of international importance.

The events surrounding George Eastman's bequests were reviewed and brought to life again at the meeting of the Tech Club on December 4 at Eastman House, George Eastman's mansion in Rochester, now a museum of photography. The meeting featured speeches by Horace Ford'31, and Admiral E. L. Cochrane'20. In his address, Mr. Ford brought out the significant part that the late Frank Lovejoy '94 played in interesting Mr. Eastman in M.I.T.

To illustrate the fruits of the \$20,000,000, Admiral Cochrane spoke about M.I.T.'s policy of education and what it has provided. John Ancona'03, first secretary of the M.I.T. Club of Rochester, gave

an account of the association of Mr. Eastman with the club. He was made an honorary member in 1920.

The 230 members, wives, and guests who attended the meeting enjoyed an unusual buffet dinner served in the front rooms of Eastman House with dinner music supplied by the famous organ. Afterward, in Dryden Theatre which adjoins the house, Dwight VandeVate'22, Club President, welcomed the gathering, and M. H. Eisenhart'07, who served as toastmaster, introduced the speakers and the guests.

Clarence Wynd'27, last year's club president, was chairman of the committee for the meeting. Serving on the committee were Fred Kolb'38, William Hosley'48, Henry Couch'20, Harold Leary'23, Ralph Peters'30, K. J. Mackenzie'28, James Littwitz'42, William Halbleib'49, Charles Park'50, Donald Ramsey'49, R. M. Wilson'30, Charles Payne'33, Stanley Wells'30, Alfred Dasburg'36, V. N. Hansford'37, R. S. Bowie'38, E. P. Kron'34, D. E. Suter'38, James Bruce'39, A. H. Hartman'41, A. Mackintosh 2-44, H. E. Essley'36, M. F. Doyle'50, Donald Kridel'40, A. E. Castle'40, and Fred Tone'35.

The Annual Christmas Luncheon was held at the Rochester Chamber of Commerce on December 29 and was attended by 50 members and 16 students from M.I.T. — WILLIAM N. HOSLEY'48, *Secretary*, 234 Croydon Road, Rochester 10, N.Y.

South Florida

A visit to the Miami area by Professor Paul M. Chalmers, Associate Director of Admissions at M.I.T., afforded the members of the M.I.T. Club of South Florida an opportunity to listen to an interesting and instructive address. The occasion was a dinner meeting at the Coral Gables Country Club on December 9. Professor Chalmers cited the academic and personal qualifications required of students for admission to M.I.T., and the methods whereby these qualifications are evaluated. He spoke of the changing concepts of education at M.I.T. under the administration of the late Dr. Compton, wherein more and more stress is being laid on the basic fundamentals of a liberal scientific education, rather than narrow specialization in the details of particular subjects, the aim being to graduate scientists and engineers rather than mere technicians. He also touched upon the use of the 1955 Alumni Fund for a memorial to Dr. Compton, stating that a structure would have had to be built anyway because of the urgent need for new quarters for instruction in the physical sciences, but a wide sharing of the cost will make a more fitting memorial; hence a large number of subscriptions is more important than the individual amounts.

Besides Professor and Mrs. Chalmers, those present were Mrs. Helen Kunde, Student Counselor at Miami Jackson High School, J. L. Newmeyer'43, Student Counselor at Coral Gables High School, and Mrs. Newmeyer, and the following members and guests: C. S. Symonds'35, President, and Mrs. Symonds; Robert Nedbor'37, Vice President, and Mrs. Nedbor; Don Whitmore'51, Secretary, and Mrs. Whitmore; K. P. Armstrong'10; F. E.

Zurwelle'20, and Mrs. Zurwelle; Ed Mandell'21, and Mrs. Mandell; Philip Caplain'22, and Mrs. Caplain; C. G. Young'23; C. P. Thayer'23; R. L. O'Donovan'27, and Mrs. O'Donovan; M. A. Baskin'34, and Mrs. Baskin; J. J. Ostlund'35, and Mrs. Ostlund. — DONALD S. WHITMORE'51, *Secretary*, 1726 S.W. 19th Avenue, Miami, Fla. KENNETH P. ARMSTRONG'10, *Publicity Committee*, 2830 N.W. 156th Street, Opa-locka, Fla.

Southern California

On Tuesday evening, November 16, the M.I.T. Club of Southern California met at the Biltmore to hear Dr. Frederick H. Pough speak on synthetic crystals. Dr. Pough was former curator of Physical Geology and Mineralogy at American Museum of Natural History and author of *A Field Guide to Rocks and Minerals* and *All About Volcanoes and Earthquakes*. He showed about 75 magnificent, colored slides showing natural and synthetic gems growing and synthetic production of gem colors. He also showed some natural diamonds which had been given vivid colors with a cyclotron.

B. Alden Thresher'20, Director of Admissions at M.I.T., made a few remarks about his activity in visiting schools in Southern California and gave some information about the current freshman class.

The Club also had as guests Dr. Chester D. Jaeger of Pomona College and his wife. Besides being professor of mathematics at Pomona and in charge of the combined course with M.I.T., Dr. Jaeger is also mayor of Claremont, Calif., and earlier in the day had participated in the ribbon-cutting ceremonies for the opening of the new 13-mile stretch of the Pomona Freeway. Others attending included: Howard S. Currier'13, H. R. Crowell'15, Walter B. Rivers'15, Mr. and Mrs. Samuel Lunden'21, Homer S. Davis'24, Rockwell Hereford'24, Mr. and Mrs. William H. MacCallum'24 and Alexandra, Anthony Thormin'27 and guest, Mr. and Mrs. Page E. Golsan, Jr.'34, John Andreas'37 and guest, Harold Seykota'39, R. H. Hutzler'40, James S. Cullison'41 and C. H. Hazelton, Jr.'52.

The Club met again on Wednesday, December 1, at Scully's Cafe to hear Dr. Rolf Eliassen'32, Professor of Sanitary Engineering at the Institute, speak on "Fresh Water from The Sea," a subject very close to the interest of every Southern Californian. Professor Eliassen, who spoke to the Club in December, is in charge of the Sedgwick Laboratory of Sanitary Engineering. There are 25 graduate students, including Canada, Pakistan, Peru and two each from India and England. One large division of their effort is on sewage — a word terrible to some but bread and butter to them. Professor Eliassen's most interesting address brought out the largest number of guests of the year, and the Club hopes to have the privilege of hearing him again.

A meeting of the Club was scheduled for Wednesday, January 12, 1955, when the speaker was Dr. Lauren B. Hitchcock, the Institute graduate who is now Director of the Southern California Air Pollution Foundation, which has taken the leadership in eliminating the Los Angeles smog.

Samuel Lunden'21 announces the completion of the ten-story Los Angeles City Health Building and Receiving Hospital at First and Main, of which he was the architect.

The project of the Karl Compton Laboratory at Tech was recently announced — a worthy tribute to a great and friendly man. A "Mr. Smith" has promised to match all gifts. Any gift sent to the Alumni Association for the 1955 regular Alumni Fund is a gift to the Compton Memorial.

I cannot refrain from mentioning the well-known fact that Thomas H. Kuchel was elected to the U. S. Senate from California and that his campaign manager was Emerson Spear'22. Hal Seykota'39, former president of the Portland M.I.T. Club, is welcomed to this area. He is associated with that active Alumnus, Robert T. Collier'18. Many interesting meetings are scheduled for 1955. The dues of \$5.00 should be paid now. — HIRAM E. BEEBE'10, *Review Correspondent*, 18747 N. Wilcox Avenue, Hollywood 28, Calif.

Washington

The third meeting of our 1954-1955 social season will feature a talk on "Research and Development in Defense" by The Honorable Donald A. Quarles, Assistant Secretary of Defense for Research and Development. Mr. Quarles has had a wealth of experience on this subject in both industry and government, having recently served as vice-president of the Western Electric Company. This meeting will be a dinner meeting on January 27, 1955, at the Cosmos Club, 2121 Massachusetts Avenue, N.W. A prior social hour starting at 6:00 P.M. will provide an opportunity to meet the speaker and fellow Alumni in a friendly atmosphere.

Our distinguished Club President, William Ahrendt'41, some of whose achievements were recently reviewed in *Fortune* magazine, has been elected vice-president of the Washington, D.C., Chapter of A.S.M.E. McGraw-Hill has recently published another book by Bill entitled *Servomechanism Practice*.

Joseph Y. Houghton'26, Club Treasurer, has been elected President of the Patent Lawyers' Club of Washington. Colonel Carroll T. Newton'33, has been appointed chief of the Engineer Research and Development Division of the Army Corps of Engineers, and Nicholas P. Stathis'29, last year's Club president, has been appointed as assistant in charge of Research and Development Program Management in that Division. Charles H. McDonnell'48, has been appointed sales manager of Atlantic Research Corporation of Alexandria, Va.

Commander Stirling H. Ivison, Jr.'41, has been named Budget Officer of the Bureau of Aeronautics. A large contingent of M.I.T. Alumni were among several hundred guests who recently honored Dr. Ralph D. Bennett at a banquet at the Naval Ordnance Laboratory, Silver Spring. Dr. Bennett, former professor of Electrical Measurements at the Institute, who had completed 15 years of service at N.O.L., resigned to accept a position with the Knolls Atomic Power Laboratory of General Electric Company. Rear Admiral M. F. Schoeffel'25, Chief of the Navy

Bureau of Ordnance, reviewed the distinguished record of Dr. Bennett, who has served as N.O.L.'s Technical Director for the past 10 years. — STERLING H. IVISON, JR., '41, *Secretary*, Bureau of Aeronautics, Navy Department, Washington, D.C. ANDREW F. HILLHOUSE '43, *Review Secretary*, Solar Aircraft Company, Cafritz Building, Washington, D.C.

CLASS NOTES

• 1891 •

A Christmas letter from Herbert S. Kimball of 729 South Broadway, Redondo Beach, Calif., states that he reads the class news in *The Review*; also that he has to lead a quiet life and finds the shores of the old Pacific Ocean a pretty good place to do it. A letter from Robert Ball will be quoted later. New addresses of our classmates are as follows: Sylvan L. Stix, Seeman Brothers, Inc., 40 West 225th Street, New York 64, N.Y., and Joseph A. Warren, 175 Cumberland Street, Westbrook, Maine. — GORHAM DANA, *Secretary*, 44 Edgehill Road, Brookline 46, Mass.

• 1893 •

Emil Lorch writes from Ann Arbor that he does not have idle moments, and is busy on full time projects. He is chairman of the Committee on Architecture of the Historical Society of Michigan, which is preparing a catalogue of early Michigan buildings (before 1900) of architectural and historical interest. He is a member of the National Committee on the Preservation of Historic Buildings of the American Institute of Architects and assisted in preparing a record of Michigan buildings erected before 1900 which are worthy of preservation. Since Classmate Lorch's retirement as professor of Architecture in the University of Michigan, he has given most of his time to historical matters, in a few cases on a semi-professional basis on such projects as the restoration of the Greek Revival Judge Dexter mansion at Dexter, Mich., and more recently to the reconstruction of a house on Mackinac Island dedicated to Dr. William Beaumont by the Michigan State Medical Society. Professor Lorch became an *Emeritus* in 1946 at the age of 70.

We have a new address for Joshua B. Blair: 1820 South Flower Street, Los Angeles 15, Calif. We have been advised by the Alumni Office of the death of Richard E. Meserve in July, 1953. They had no further information about Classmate Meserve. Mail addressed to Alden R. Palmer at 216 Fifteenth Avenue, N.E., St. Petersburg, Fla., has been returned to us. If any member of the Class knows the correct address, the Assistant Secretary will appreciate receiving it.

Harry Latham writes from Worcester that he spends considerable time these days in repairing and refinishing old furniture which they have accumulated over the years. We are sure he gets much pleasure from this worthwhile hobby. Classmate Latham read with interest in the last issue of *The Review* of the long trip Arthur Jameson made last year

through foreign lands. — GEORGE B. GLIDEN, *Secretary*, 99 Chauncy Street, Boston, Mass. GERTRUDE B. CURRIE, *Assistant Secretary*, c/o Fay, Spofford and Thorndike, 11 Beacon Street, Boston 8, Mass.

• 1895 •

Latimer Willis Ballou, Course II, passed on November 29, 1954, at his home in Woonsocket, R.I. After leaving Tech he applied himself to the textile interests, starting business and a banking career by joining with the late Governor Aram J. Pothier, Joseph Guerin, and Stanley G. Smith in organizing the Guerin Spinning Co., in 1896. Later he planned and organized construction of the Alsace, Montrose, Philmont and Rosemont mills, which were eventually merged into the Guerin Mills, Inc. He was state banking commissioner from 1931 to 1936. In 1905 he served one year as a member of Rhode Islands House of Representatives. In 1936 he was elected president of the Woonsocket Institution for Savings. He also was a member of the board of directors of the Morris Plan Company of Rhode Island and a member of the discount committee of the Woonsocket branch. Lat Ballou descended from a Rhode Island family which for generations had been prominent in politics and business in the northern part of the state.

He was a member of all of Woonsocket Masonic Organizations; the Providence Art Club, and the Square and Compass Club. He was a former president of the board of trustees of the First Universalist Church; a trustee of the Universalist Publishing House of Boston; a member of the finance committee of the Woonsocket Public Health Association and of Oak Hill Cemetery Corporation; and chairman of the finance committee of the Ballou Home for the Aged. He was a member of many civic, fraternal, and social clubs. A son, daughter, brother and four grandchildren survive him. An interesting experience is cited in Lat's record: "At the outbreak of World War I, the Guerin Spinning Company had the distinction of being the only factory in the country making the silk cartridge cloth used for powder bags or for the containers of big charges for different guns. The company devoted at least 97 per cent of their production, day and night, manufacturing this product continually to the time of the armistice. Until other factories were persuaded to make this cloth, the Guerin Spinning Company for a long time had been the only source of supply to the Army and Navy."

Alfred P. Sloan, Jr., Course VI, Chairman of General Motors Corporation, was selected as the 1954 recipient of the Hoover Medal, a top engineering award. The medal, given "for distinguished public service," was presented to Mr. Sloan at the annual dinner of the American Institute of Consulting Engineers, in New York, on October 19. The medal was named in honor of ex-President Herbert Hoover, who was its first recipient in 1930. It has been awarded 14 times by a board composed of representatives of the National Societies of Civil, Mining, Mechanical and Electrical Engineers. You will recall that Sloan is also president of the Alfred P. Sloan Foundation, New York City, N.Y.

We heard that Elmer Lindberg Wengren passed on last October 15. Wengren was with our Class 1893-1895, in Course IV. In 1889 he received the degree of A.B. from Harvard. He was born in Portland, Maine, and operated in the Investment Securities in Portland for many years. We have an interesting quotation from him, some 25 years ago, and we quote as follows: "My personal satisfaction with both Tech and Harvard grows with years; the former certainly gave me higher standards in matters of art, and the latter opened many a vista that would have been unknown. Ideals, motives and all that human help can give a boy; but the strength of the American Republic today reflects the widespread influence of educated men. New England can no longer claim full precedence in education. The West has come to its own. But the old schools do, I believe, stand more in touch with what the Old World has left to give. A chastened society. The English Stage. The English novel. The French Academy. The School of Rome. All these are products of such criticism as Despradelle and such men gave to Tech. We should all be proud to do what we can to sustain Tech and widen its influence. As the country grows older we are not likely to work so much for money, for it will be increasingly difficult to get; but we can get satisfaction in high ideals." Tommy Lothrop has now purchased a house in the East. You can address him at Maplewood, N.J. — LUTHER K. YODER, *Secretary*, 69 Pleasant Street, Ayer, Mass.

• 1896 •

Having heard from some of our local class members we can report good health due to intelligent adjustments which keep most of us on the firing line. We accept the announcements of departed friends with a better understanding of the poem of Oliver Wendell Holmes, "The Last Leaf on the Tree," and may we be able to carry the '96 standard with courage to progressive horizons.

Your Secretary received the following letter from Paul Litchfield: "Dear John: I received your note of November 24 advising that you had received my recent book, *Industrial Voyage*. I am still as active as ever, and thought you might be interested in what I have been doing during the past year. Outside of our usual trips all around the country, including four visits to our ranch and factory in Arizona, last December I spent a couple of weeks in Colombia, picking out a site to start the building of a new factory there near Cali, to replace the small one which had been outgrown. During May and June, Mrs. Litchfield, our granddaughter and I took a trip over nine countries of Western Europe, visited our plants in England, Sweden and Luxembourg, made arrangements also to have our tires made in Western Germany, taking in several interesting vacation spots in England and Switzerland. Last Thursday I returned from a trip to Venezuela, picking out a site for a new factory in that country which we are going ahead with at once to take care of their rapidly developing market. It is many years since I have completed visiting the 48 States in the Union, and Venezuela was the last and only one

of the American Republics in the Pan-American Union that I had not visited, so I have now completed that circuit. I am happy to say that our business is still growing and we are completing another good year, and the prospects for 1955 look very good. I hope you are continuing in good health and happiness. My best wishes for a Merry Christmas and a Happy New Year. Sincerely, Litch."

From a news release we learned the following: "All 56 chapters of Eta Kappa Nu, the electrical engineering honor society, have elected Dr. William D. Coolidge to the rank of Eminent Member. Such status is offered, according to the Society's constitution, 'only to those individuals who by their technical attainments and contributions to society have shown themselves to be outstanding leaders in the field of electrical engineering and great benefactors of their fellow men.' Dr. Coolidge was formerly vice-president and director of research for the General Electric Company. He is a native of Hudson, Mass., took his bachelor's degree in physics at M.I.T. in 1896, and his Ph.D. at the University of Leipzig in 1899. For a time he served as an instructor in physical chemistry at M.I.T., joining the G.E. Research Laboratory in 1905. More than 40 years ago he invented the Coolidge X-ray tube. This is now universally used in dental X-ray equipment as well as in almost all other applications of X-rays. Among his other numerous scientific achievements was the development of a process for making tungsten ductile, permitting it to be drawn into fine wires for use in the incandescent electric lamp. A member of the National Academy of Sciences, Dr. Coolidge also holds membership in several technical groups, as well as the scientific honorary fraternity Sigma Xi, and the American Philosophical Society. He has been awarded many medals both here and abroad, holds honorary degrees from seven institutions of higher learning, and his scientific work has been incorporated in many standard textbooks."

In a card from Henry Waterman of Yarmouth, Nova Scotia, he says: "I will not forget the kind, friendly reception I received from you and Fred Damon at the reunion in Swampscott." Also a note from Mrs. Henry Grush: "To the Class of '96, please accept my sincere thanks for the beautiful flowers sent me at the time of my husband's passing. You may be sure that this expression of sympathy was very much appreciated. Sincerely, Vera L. Grush."

A long letter from Charlie Hyde was received, and the following parts are quoted: "My professional work keeps me as busy as I want to be. I had an interesting three months in New Zealand as chairman of the panel of engineers studying and reporting upon a sewerage and drainage scheme for the Auckland Metropolitan Area. In this country in association with the engineers we have been engaged for a number of sewerage, drainage, water supplies and pumping projects. I am chairman of the advisory board of our university U.M.C.A., with which I have been connected for some 35 years. This year I complete a three-year term as Deacon in Dr. Loper's Church, our first

Congregational Church here. So you see I manage to keep busy. One of my greatest interests is Captain of the 'Sons of Toil' in the famous Bohemian Club here. Our group of 18 has about 15 men in *Who's Who in America*." He ends with a Happy New Year, filled with good health, good cheer and pleasant circumstances. — JOHN A. ROCKWELL, *Secretary*, 24 Garden Street, Cambridge 38, Mass. FREDERICK W. DAMON, *Assistant Secretary*, Commander Hotel, Cambridge 38, Mass.

• 1897 •

Many of you may recall there were in our Class two men named Frank E. Underwood. The following letter under date of December 18, 1954, has been received from one of them who was listed as Frank Elijah Underwood, Course IV, and who formerly lived in Natick: "Soon after leaving Tech I began the serious study of music (pianoforte) under the interesting guidance of B. J. Lang, who was at that time the most widely known teacher in Boston. I entered the teaching field before completing my studies with Mr. Lang and soon became a very busy teacher myself. I have held responsible positions as organist and choirmaster in several churches. At the age of 79 I am no longer in church work. However, I have accepted a few pupils and, of all things, have become busy as a tuner for some of the finest people I have ever known. Mrs. Underwood and I are very happy in our New Hampshire home where we have made many friends. Our home is in South Wakefield (mail address, Sanbornville). Nothing could persuade us to return to our other home. We love New Hampshire. I hear from Leonard DeMeritt, Tech '97, often. He is, as you know, in Baltimore." If in our day as undergraduates the musical opportunities at M.I.T. had been as great as they are today, I am sure our musical classmate would have been glad to take full advantage of them.

This makes a total of only six letters received to date in reply to our circular letter of last September. Please get busy and write without delay for I know that you have much of interest to tell us about your business career and family. Writer's cramp is no excuse in these days of typewriters and unless both arms are crippled you can at least "hunt and peck." Otherwise, these notes will consist mainly of obituaries.

It is our sad duty to announce the death on January 19, 1954, of our classmate, Jonathan M. Gilmore, Course VI, who had retired some years ago and was living in Pasadena, Calif. Many will recall his presence at several of our Class reunions. As we recall him he was a hearty, genial fellow who had followed his profession of electrical engineering for many years but later on suffered ill health. If anyone who has knowledge of his career would take the trouble to advise the undersigned, we will be glad to see that it appears in these notes. By the time the March Review is circulated, your Secretary Pro-tem expects to be out of town. During February he will be at Eagle Point, Venice, on the West Coast of Florida, and during March, at Tryon, North Carolina. However, mail sent to the

address below will be forwarded, and I trust the delay in getting your letters in The Review will not exceed the nominal seven weeks required for composition, printing, and delivery. — JOHN P. ILSLEY, *Secretary Pro-tem*, 26 Columbine Road, Milton 87, Mass.

• 1899 •

Two more of the Class have passed to the Great Beyond according to notices received through the Alumni Secretary's office: W. Scott Matheson, II, of 813 Gwinn Place, Seattle, Wash., who died April 25, 1954, and Walter W. Bonns, IV, of 2524 E. Bradford Avenue, Milwaukee, Wis., whose death occurred Nov. 18, 1954. As these notices were received just before the deadline for the March issue, no further details in either case are available. — BURT R. RICKARDS, *Secretary*, 381 State Street, Albany, N.Y. MILES S. RICHMOND, *Assistant Secretary*, 1793 Beacon Street, Brookline 16, Mass.

• 1900 •

Before you read these lines you will have received a letter from Percy Ziegler giving definite announcement concerning our 55th reunion next June. It will be held, as usual, at The Pines in Cotuit, Mass. If you have never been there, you may not know it, but it is a most delightful place on the south shore of Cape Cod. This will be our sixth reunion there. The date will be from Thursday, June 9, to Sunday, June 12. Please note that these are the days before Alumni Day and not after as have been our previous reunions there. As usual you should make your reservation for a room direct with the hotel manager, Mr. C. D. Crawford, The Pines, Cotuit, Mass. The sooner you do this the better for, although there will be room enough for all, the number that can be accommodated in The Evergreen is limited. A number of the Class have already indicated that they expect to come and we are sure that we will have a most delightful reunion.

Wilbur W. Davis has given the following account of himself. "For the 45 years preceding my retirement in 1947, my work had been as engineer with the Boston Transit Commission, on the plans, design and construction of tunnels, subways and rapid transit lines in the City of Boston. For the last 25 years of that period I was Assistant Chief Engineer for 11 years and upon the death of my predecessor I became Chief Engineer, that is, for 14 years until my retirement. Some of my chief accomplishments I consider to be as follows: Construction of the Sumner Tunnel for automobiles, under Boston Harbor. Dorchester Tunnel Extension to Ashmont for electric trains. East Boston Tunnel Enlargement and Extension in East Boston for electric trains. Boylston Street Subway Extension under Governor Square and to Brookline for electric cars. Huntington Avenue Subway for electric cars. I have one daughter, Lenore R. Fomon, who holds a medical degree. Her husband, Samuel Fomon, M.D., of New York, is rated as the outstanding plastic surgeon in this country. They have one daughter. Since retirement I have spent my summers in my old Colonial home in a small town near the line between Maine

and New Hampshire. From here I have a view of the whole White Mountain Range. Winters I spend at my home in Melrose, Mass. Nearly all my life I have been an ardent philatelist. As co-author I have written and published two outstanding books on that subject."

Charles M. Carpenter was not long with us at Tech but some of Course X may remember him. He writes from Bradenton, Fla.: "My first job was on Engineering Corps Ship Canal for the Government. (2) G. E. Company, Schenectady, estimating copper for their appliances. (3) Getting out first catalog for Robin's Conveyor Belt Company, New York City. (4) Shienberger Steel Company, Pittsburgh, designing blooming mill table and installing same. Got prize for largest production. (5) Acting chief engineer for Apollo Roll Foundry and Vandergrift Sheet Steel before U. S. Steel was formed. I then went to Los Angeles for several years building residences and small apartments. I came east in 1915, became assistant city engineer in Binghamton, then I was employed as chemical engineer for Ansco designing Dope plant for celluloid dope moving picture film. I became a registered chemical and civil engineer in Michigan at Detroit and was employed by City of Detroit, County and State under Civil Service, highest rank project engineer, State Highway. During World War II, I was in charge of tank welding at Cadillac designing and putting in operation a 'Merry-go-round' holding 12 tanks, each of which rotated on its own carriage, one tank completed at end of each circuit.

"I left General Motors and retired at the time of their strike. My wife had died and I bought a trailer and toured Texas and old Mexico, winding up in Florida where I have established a home, having married again. My hobby is cabinet work and raising flowers and shrubs. I am hale and hearty and drive North most every year. I believe a general engineering course at Tech is the best equipment a man can have for his life work, whatever it may be. I am a member of the Class of 1899 at Williams College. I am an Episcopalian and for several years Secretary of Vestry in Detroit. My daughter, Alice, attended University of Southern California and got her degree as Bachelor of Bacteriology at Leland Stanford. My son, Alvin, graduated from Cornell University, went to N. Y. Medical and secured M.D. degree, had rank of Commander on Solace in World War II, then resigned and took degree of Master Surgeon of Orthopedic Surgery in University of Pennsylvania and is now making a name for himself in Binghamton, N.Y. His daughter, Ruth, graduates from Cornell this June. I have enough to be comfortable in what remains of my time, but it keeps me guessing at times from high cost of living. I now prefer to stay put in my Florida home 'and let the world go by'." — ELBERT G. ALLEN, *Secretary*, 11 Richfield Road, West Newton 65, Mass.

• 1901 •

With the Class Letter coming to you in February and giving you the current news, these notes will, of necessity, be very brief. I shall keep repeating like a T.V. commercial, that you must supply me

with material for the notes. As we grow older the seemingly unimportant, commonplace doings are of more interest to us; so tell me what you are doing and what your interests are, especially those of you who rarely or never send in news. I hope that before the April notes have to be sent in I will have ample material.

The only item of news is taken from a newspaper clipping of last August telling some interesting facts about Bob Derby. "Robert M. Derby of Brookside Farm is credited in a recent column in a New York City newspaper, with being the originator of the idea of the red and green guide lines that direct passengers to the east and west side subways in the Times Square shuttle section of New York's underground. Meyer Berger, in the *New York Times*, relates that when the shuttle system opened on August 1, 1918, there was hopeless confusion and the shuttle had to be closed down until a program for directing traffic could be devised. As Charles Bulkley Hubbell, Mr. Derby's father-in-law, pondered the question, Mr. Derby, fresh out of M.I.T., suggested the solution, taking his idea from the Grecian legend of Theseus making his way out of the labyrinth in Crete.

"Mr. Derby was vice-president in charge of the foreign department for Niles-Bement-Pond Company in New York, until his retirement in 1940. Since his retirement he has resided at Brookside Farm, the former Hubbell homestead. He has been active in local civic affairs, having been a member of the five-man committee appointed to investigate the town's government and a past president of the Williamstown Taxpayers' Association. He has been in the forefront of the fight to save the town's elm trees from the Dutch elm disease and is at present chairman of the Berkshire County Dutch Elm Disease Control Committee."

You will note that Willard Dow has changed his residence from Wellesley Hills to Cohasset, Mass. — THEODORE H. TAFT, *Secretary*, Box 124, East Jaffrey, N.H. WILLARD W. DOW, *Assistant Secretary*, 78 Elm Street, Cohasset, Mass.

• 1902 •

The Boston M.I.T. Luncheon Club meetings are becoming a meeting place for '02 men. On December 16 attendance included Bassett, Hunter, Patch, Shedd, and Williams. Dan hopes to make the attendance larger. It has been learned that Royal Wales has been in the hospital but is now in good shape. He has two hobbies: the cello and ceramics. He has a potter's wheel in his cellar and gets great pleasure turning out various examples of the potter's skill. Christmas cards were received from Judson, in Phoenix, Arizona, and Nichols in Minneapolis. We are happy to announce the marriage of Bassett's daughter Cynthia to Mr. Edward W. Pride, Jr., on December 4, 1954.

Again this year all members of the Class are receiving complimentary subscriptions to *The Review* and if you wish to keep the notes alive and interesting send in news about yourself and maybe the other fellow you would like to hear from will do the same. — BURTON G. PHILBRICK, *Secretary*, 18 Ocean Avenue, Salem, Mass.

• 1903 •

We are sorry to have to report the deaths of two of the Class, Frederick H. Wetherald, VI, who died in Dedham, Mass., on September 8, 1954, and Clifford B. Woodward, IV, who died in Cincinnati, Ohio, on October 23, 1954. Word was received from the Alumni Office about Wetherald, with no further details. Woodward was, for a number of years, in partnership with Fred Garber, also of our Class, who died in 1950. This firm designed many important buildings in Cincinnati, the Union Central Life Insurance Company and the Gas and Electric Company buildings, for example. Woodward retired about 10 years ago. He leaves his widow and a daughter and three sons, two of whom are commercial artists and illustrators.

As the result of your Secretary's appeal, Clarence Joyce, V, writes as follows: "I would have written you before about the travel activities of my wife and myself if I hadn't feared our Class would be bored by our, more or less, purposeless travel activities. I did attend the Society of Chemical Industries meeting in July, 1954, where I was greeted by the president, Sir William Ogg, who said before the meeting I had come from America to celebrate my 50 years' membership. Said Sir William, 'Joyce was here in 1905 and is still running around as spry as ever.' In London, I barged into the office of Winthrop Aldrich in Grosvenor Square with a story that Earle Pitman of Camden, Maine, told me to call. The American Ambassador was out, but his secretary sent me two invitations to the Independence Day reception at Princess Gate. Some 2000 Americans in their best clothes milled around absorbing tea, liquor, cake and sandwiches. We stayed at Dartmouth House of the English Speaking Union, who arranged for a tea at the House of Commons dining room. There we met Lady Davidson, among others. Heard her views of Senator Joe. In Paris, I missed Ambassador Dulles, who was busy with the returning delegation from Geneva. While in Lucerne, we drove some 100 kilometers to Churwalden where Albert Schweitzer College is, supported largely by Unitarians in America. We met Dr. Schweitzer's niece, Marie Woytt, who is teaching there. The college undertakes to bring youths of as many nationalities as possible, together. The location is perfect in a wonderful Swiss valley. On the *Britannic*, we had as a table companion the British consul to Puebla, Mexico. Every one called him 'Sir Winnie' due to his resemblance to Churchill." Joyce is planning further journeys in April and June, and perhaps we shall hear about these later. Good luck to him and Mrs. Joyce in their travels. — FREDERICK A. EUSTIS, *Secretary*, 131 State Street, Boston, Mass. JAMES A. CUSHMAN, *Assistant Secretary*, Box 103, South Wellfleet, Mass.

• 1905 •

Just about three months from the time you read these notes you will be on your way (we hope) to our Fiftieth Reunion at Stoneleigh Gables, Hyannisport (Cape Cod), Mass. We have had approximately 125 tentative applications for reservations.

Since it will be necessary for us to make these positive before a certain date, you will receive within the month a new and final reservation blank, which you must fill out and return as soon as possible. You will also be asked to fill out a questionnaire, showing your preferences as to program, accommodations, and so forth. The location your committee has selected is ideal; we are informed that the food will be "super"; the rest is up to you, and one hundred and twenty-five (or more) '05 fellows and girls should make this once-in-a-life-time occasion "the most." If you don't know what that means ask today's teen-ager.

Bob McLean is still doing a whale of a job as Class Agent. Our record as a Class, percentage-wise as well as in totals, is good, but the amount of our Fifty-Year Gift depends upon even greater efforts individually.

Lack of space prevents the acknowledgment of over 30 Christmas cards received from '05ers, but all were gratefully appreciated. The card from the Marcys was the reproduction of an excellent pen and ink drawing of the fireplace in their farm at West Franklin, N.H. A real artist in our midst, Claude Anderson's was a very pretty and very nicely executed block print done in the Anderson Studio. The Ayers had an individualized card, the motif showing and telling how Cape Cod Hill got from its moorings on Massachusetts Bay to the back yard of his country house at Strong, Maine. Herb Bailey's card was a full page Christmas letter head telling principally of the birth of another "Bailey Baby Boy." His father, Edgar, is in charge of all the work of the Minerals Branch of the U.S.G.S. west of the Rockies. Herb keeps busy "spending much of my time making pottery, a little Scouting, my S. S. Class, the Civil Service Commission and a little gardening keep me from butting in too much with the raising of three grandchildren — I hope."

Norman Lombard has a new (or another) business interest. He is secretary-treasurer of the Owens Industries, Inc., 550 Fifth Avenue, N.Y. No explanation except that this obligation may keep him from attending our 50th Reunion. A motion is in order to appoint a committee to corral two busy executives, Lombard and Bell, and bring them in irons to Cape Cod next June. Or "do it yourself." My Christmas card found Fred Poole in Rutland, Vt., where he has been for four months on a production control job for the Vermont Marble Company in collaboration with Barrington Associates, Inc., of New York. He expects to be there for some weeks.

Through her husband, Charles S. Maddock of Trenton, N.J., we learn of what a busy and remarkable woman our classmate Elizabeth Middleton Maddock has been. She has six children, 18 grandchildren and two great-grandchildren. Without attempting to be chronological we mention that since leaving M.I.T. she has been president of the Trenton Women's Club, and N. J. State Federation of Women's Clubs, a member of the N. R. Blue Eagle Board, N. J. State Economic Council (only woman member in 12 years), Y.W.C.A. International Committee, member State Board of Women's Re-

publican Club, Mercer County Mosquito Control Board, Committee on Migrant Workers, helped organize the N. J. Battleship Company, the State, County and City League of Women Voters, the N. J. College for Women, the College Club of Trenton, the N. E. Women's Club of Mercer County, has been Trustee of Rutgers University, of the New Hope School for Girls, of the Trenton Day Nursery, is an active member of Mercer Chapter, D.A.R., and was nominated in 1950 as Mother of the State. And Mr. Maddock adds, "Only this morning she took the 7:40 train from Trenton for a meeting of the Economic Council, having worked with five governors in this capacity, all without compensation."

Prince Crowell writes that having sold his town house in Franklin, Mass., he will tour California and Hawaii, then settle at his summer home at Woods Hole (Cape Cod), Mass. Andy Fisher spent a couple of months in the South as good will ambassador for the Abbott Machine Company, Wilton, N.H., manufacturers of textile and dyeing machinery. Frank Longley, apparently in retirement from Lock Joint Pipe Company, has taken up residence in West Dennis, Mass.

We have the information that Fred W. Simonds, I, 35 Old Marlboro Road, West Concord, Mass., died on Dec. 7, 1954. No further details at present. — FRED W. GOLDTHWAIT, *Secretary*, 274 Franklin Street, Boston, Mass. GILBERT S. TOWER, *Assistant Secretary*, 35 North Main Street, Cohasset, Mass.

• 1906 •

A letter has been received from Harold Coes dated December 29, 1954. The Secretary invited Harold to the class dinner held on December 10, reported in the last issue, and Harold expressed his regrets for not attending, as he had been away for 10 days and had some business engagements which prevented him from coming to Boston. He wrote he had seen a few of the classmates the past couple of months at dinners or luncheons in New York, *viz.*, Sherman Chase at the Sloane-Hoover Dinner, Joe Santry at the Kettering Dinner and Stewart Coey at the Montclair Society of Engineers' Luncheon in New York. Incidentally, we wrote Harold on some new class paper which we had prepared in connection with the Fiftieth Reunion. Harold was quite complimentary about the paper and requested a modest supply of the same. If classmates would like to see a sample, I suggest they send the Secretary an item for the class notes and he guarantees to acknowledge the same on the new paper.

The Secretary regrets that the most of the remaining information this month has to do with the death of classmates. This does not mean there has been a sudden increase in our mortality rate but the work of the Alumni Association on the new Alumni Register results in this information, in some cases the death occurring some years back.

In the January issue we had occasion to refer to the death of Dr. L. D. Smith of Milwaukee who, during recent years, had shown quite an interest in the Class and attended two of our recent Reunions. At that time very little information was

available about his decease. We are indebted to Chester Hoefler for additional information which I know will be appreciated by classmates. Dr. Smith's secretary, who had been with him 25 years, acknowledged the Hoefler's Christmas card and submitted the following information: "Dr. Smith had a heart attack in June. He was able to return to work July 1. On August 1 he returned to the hospital where he stayed until he came home on September 12. He did not return to his practice. He passed away October 7, 1954." The secretary added: "He was a wonderful man. His death is a very great loss to the City of Milwaukee and the State of Wisconsin."

The four following obituaries were forwarded by the Alumni Office: Laurence F. Bedford died November 13, 1954. The Secretary's record shows that the last 40 years he had lived in Roxbury or Dorchester, his last address being 16 Greenmount Street, Dorchester. James E. Griffin, Course I. Our records show Griffin was with the American Agricultural Chemical Company as assistant superintendent in 1915. In 1920 he was in New Bedford, Mass. In 1931 with the National Paving Brick Manufacturers Association in Pittsburgh, his last location being in Buckingham, Pa. The Alumni Association advises that he passed away in 1942. Stanley C. Lary. Lary did Y.M.C.A. war work in France in World War I, was in Washington in 1919. From 1922 on he had been in New England, having a Portland address in 1949, which was later changed to Gorham, Maine, which was his address at the time of his death in 1952. Also the Alumni Office has reported the death of Louis A. Riley, II, on September 24, 1954. He was in Santa Fe, New Mexico, for five years in the early 20's; Long Beach, Calif., 1934 to 1936; in Maryland at Bethesda from 1943 to 1953, and resided in Chevy Chase at the time of his death.

I should not close these notes without at least including a reference to our Fiftieth Reunion, which is but 15 months away. The Secretary regrets he cannot give you an accurate estimate of the cost of the affair at this time, but why not begin to make your plans now to attend, as there will be but one Fiftieth Reunion and if you have never attended one and never attend another, you should make an all-out effort to be present in 1956. — JAMES W. KIDDER, *Secretary*, 215 Crosby Street, Arlington 74, Mass. EDWARD B. ROWE, *Assistant Secretary*, 11 Cushing Road, Wellesley Hills 82, Mass.

• 1907 •

A letter from Leverett Cutten dated last December 21 tells of his return to his home in Allentown, Pa., on November 11 after having been away for over three months. He was on a Mediterranean cruise as far as Istanbul and Athens, then on a bus tour to the Swiss Alps and the Italian lakes as far as Milan. This was followed by a bus tour of Spain, with a flight from Gibraltar to Tangier and return, then a flight from Madrid to London. A few days before he left England for home, shingles developed on the left side of his scalp, and as of December 21 he was still suffering from constant pain in his head. Leverett sent me a copy of the

Bates College (Lewiston, Maine) Bulletin of September, 1954, which has an account of the ceremonial collar made by Leverett and of its presentation by him to the college in behalf of the class of 1904, of which he is a member, at the college commencement-reunion week-end last June. On commencement day the college president, Charles F. Phillips, wore the impressive formal necklace which is exquisite in design, rich in symbolism, and the original creation of our classmate, who is a skilled artisan in silversmithery. Leverett was awarded the Bates College Club trophy last June.

As the result of a letter that I wrote to Rudolf H. Kudlich, a graduate in mechanical engineering, 95 Bayview Street, Camden, Maine, I received, under date of December 28, a fine message from him. From 1907 to 1912 he worked for two anthracite coal companies and then became associated with the United States Bureau of Mines. He was located in Pittsburgh until 1920, then was in Washington until 1937, and from 1937 to September 30, 1954, when he was retired, he was superintendent of laboratories and mechanical engineer at Eastern Experiment Station, U. S. Bureau of Mines, College Park, Maryland, thus serving the Government for 42 years. He was awarded the Department Silver Medal upon his retirement. He is planning to live a retired life in Camden, enjoying his hobby of woodworking and cabinet making. He anticipates a year or two of effort in carpenter work, plumbing, electrical work, painting, and so on, on an old house he has bought, and in building a shop to house his woodworking equipment. Rudolf's family consists of his wife, two married daughters, a son, Richard, and three grandchildren.

As you are reading this, our 48-year reunion on June 10-12 at Oyster Harbors Club, Osterville, Mass., is only about three months in the future. As of January 14, when I am writing these notes, 29 men have indicated their definite planning to attend, and 27 others have said that they hope to be present, so we ought to have an attendance of at least 50. I earnestly hope that *you* will be included. And don't forget the M.I.T. Alumni Fund if you haven't already sent in your contribution. — BRYANT NICHOLS, *Secretary*, 23 Leland Road, Whitinsville, Mass. PHILIP B. WALKER, *Assistant Secretary*, 18 Summit Street, Whitinsville, Mass.

• 1908 •

The second dinner-meeting of the 1954-1955 season was held at the M.I.T. Faculty Club, Cambridge, Mass., on Wednesday, January 12, 1955, at 6 P.M. with the following present: Bunny Ames, Bill Booth, Nick Carter, Myron Davis, Leslie Ellis, George Freethy, Sam Hatch, Winch Heath, Bill Hunter, Linc Mayo, Bill Medicott and Joe Wattles. Jeff Beede and Miles Sampson were both convalescing following hospital visits, so couldn't be with us while Henry Sewell was all tied up with Town Board meetings. We congregated in the Cocktail Lounge as usual. Fortunately Leslie Ellis arrived early so was able to commandeer a table for '08. Tables are at a premium on Wednesday afternoons as Wednesday is always a very busy day at the Faculty

Club. After cocktails, we adjourned to Private Dining Room Number 1, which looks out over the Charles with its wonderful display of lights. The dinner as usual was excellent. After dinner Joe Wattles entertained with Kodachromes taken on his last spring and summer trip to the West. At our November, 1954, meeting he showed pictures taken on his trip to Hawaii and those shown now were taken preceding and following the Hawaii trip. We are certainly very much in Joe's debt for the many entertaining evenings of Kodachromes he has given us. Joe tells me his son has just finished his four-year enlistment in the U. S. Navy and is now breaking into the family business in Canton, Mass., and Joe is hoping before long to take a trip around the world with his good wife, so we can look forward to more wonderful pictures at some future date. The sympathy of the Class was sent to Doc Leslie and Bunny Ames, upon the death of Mrs. Leslie and Mrs. Ames.

We again urge that those who have not as yet subscribed to the Alumni Fund to do so right away. Those who have subscribed are urged to increase their subscriptions. Just remember that these subscriptions all help to build up our 50th year gift to the Institute in 1958. The Third Dinner Meeting of the 1954-1955 season will be held at the Faculty Club, Cambridge, Mass., on Wednesday, March 9, 1955, at 6 P.M. Usual reply cards will be mailed, but make your plans now to come. — H. LESTON CARTER, *Secretary*, 14 Roslyn Road, Waban 68, Mass. LINCOLN MAYO, *Treasurer and Assistant Secretary*, 47 Alton Place, Brookline 46, Mass.

• 1910 •

There has been a scarcity of news of the Class for the past two months. Allen Gould writes as follows: "I keep pretty active in Tech affairs of Cleveland as in the past many years but there are very few '10 men left around here now. Going to a luncheon this noon at the University Club for about 30 of the local M.I.T. undergraduates. These are always good affairs. Also, have been put on the committee for the Third Mid-Western Regional Conference to be held in Cleveland January 26. It ought to be a success as the younger members of the committee are an able bunch. Will look forward to catching up with you in June. I get East to Maine or Edgartown most summers and have given you a ring once or twice but generally it is not a good time to connect in passing through a hot Boston."

I also received a letter from Walt Spaulding, as follows: "I have been so busy with my architectural and engineering work on three sizable projects ever since our return from two months in the Orient just a year ago, that I missed my annual trip to the States. However, I am going to show up (with RONALDA) for our 45th Reunion next June unless business forces me to make a trip East before then."

The following is from the New York Times: "W. C. Arkell, vice-president of the board of Beech-Nut Packing Company, has been elected board chairman. He succeeds Edward W. Shineman, Sr.,

who served as Beech-Nut's chairman for six years before retiring this month. Mr. Shineman had served 50 years with the company. The new chairman, son of Beech-Nut's first president, has been associated with the company since 1911 and has been a director since 1921. Mr. Arkell succeeded his father as president in 1941 and continued in that office until 1950." — H. S. CLEVERDON, *Secretary*, 120 Tremont Street, Boston, Mass.

• 1911 •

With two earlier deaths reported in connection with mail returned to Register of Former Students office and our first reported death of 1955, we open on a sad note. Henry W. Hall, IV, from whom we have seldom heard, is reported to have died at his home in Vincennes, Indiana, on New Year's Day, 1948. On June 13, 1953, A. Benjamin Werby, VII, who for years had operated Werby Labs, Inc., Boston chemists, died. His son, who had joined him in the lab about four years ago, is continuing the business.

Upon my return from the American Retail Association Executives Annual Meeting in New York, the day following our annual 1911 class luncheon at the Tech Club of New York, I found a note from Roy MacPherson's wife, Ina, whose eagle-eye had caught an obituary in the Boston Sunday Herald announcing the death of Lester D. Cushman, IV, at his home in North Woodbury, Conn., January 8. You'll very likely best remember Cushman as the "royal chef" in the Tech Show, *Queen of the Cannibal Isles*. For many years he was an architectural engineer in and around Boston but in 1940 went into the metropolitan area at New York. Cushman and his vivacious wife, the former Hazel Davis, attended a couple of our five-year reunions and when he last attended one of our January New York class luncheons, two years ago, he told us he had just followed his doctor son's advice and had retired from active business. He and Hazel located in North Woodbury, Conn., where she is continuing to live. His son, Dr. George L. Cushman, and a daughter, Mrs. Stanley Teixeira, also survive.

Another third generation Eleveners: to Mr. and Mrs. Stanford H. Hartshorn, Jr., of Gardner, Mass., a daughter, Susan Knight, December 9. Grandparents are Mrs. Stanford H. Hartshorn of Gardner and Mrs. Knight Quincy of Ashburnham.

That Zeppelin, rocket-propelled, Christmas card from our ranking Navy classmate, Admiral Luis deFlores, II, was most ingenious, while the card from Alice and Tom Desmond '09 (an honorary Eleveners), featured a beautiful photograph of Mount Wilbur, Montana, and the card from Gertrude and O. W. Stewart, I, featured this message from Gertrude: "Christmas is singing, giving and sharing; Christmas is loving, praising, adoring; Christmas is always." Long distance honors went to Franklin Osborn, III, from Potrerillos, Chile, South America.

Liv Ferris, VI, wrote: "Greetings from this westward-bound train from Louisiana for Colorado and Christmas with Liv, II, and family, then a visit with daughter, Eloise, in California." Dorothy and Oliver Powell, I, wrote from 353 West California Avenue, Glendale 3, Calif.: "Greetings

and salutations — and don't be overcome at hearing from me. You have tried for a long time to get a 'peep' out of me and at this holiday time I want you to know that I do think of you occasionally, even though I don't put the thoughts into words. All good wishes to you and other Eleveners for the New Year."

We had 14 Eleveners at the January 11 "Welcome to Dennie" class luncheon, engineered annually by President Don Stevens, II, at the M.I.T. Club of New York and this year "something new was added." Yes, sir, we had an art exhibit, with President Don and Joe Harrington, VI, each exhibiting four paintings. Following an excellent luncheon, the artists explained their work. Harrington has been working with water colors for five years, going to art school nights and Saturday mornings in easy stages. Joe's four studies included: "Lobster Shack at Brooklin, Maine"; "Lobstermen's Docks at New Harbor, Maine"; "Kitchwan Woods on the Taconic Parkway, Westchester County"; and "New England Winter Scene." Joe says not only does his painting provide invaluable relaxation, but also thorough enjoyment and pride of accomplishment.

Don started his work in oils nearly three years ago, primarily for therapeutic work, and it has done him a lot of good. He exhibited a remarkably fine still life, fruit; a landscape at Pownal, Vermont; and identical scenes made in summer and autumn at the Joe Jefferson Fishing Club, Saddle River, New Jersey. Nat Seeley, II, presented Don with a print of the original Stevens Homestead, located in Cowhill, a village of Clinton, Conn., and one of the earliest American farms. Nat's great-grandfather, born in 1803, lived there.

Following the secretarial report by Dennie, there was an unusually interesting talk-around. Pat Russell, II, is still in real estate and said he is getting a great kick out of wood-carving, so we urged him to exhibit next year, to which he agreed. Joe Harrington said he had retired last May, after 22 years with Standard Oil, and has become very much interested in the economic phases of atomic energy and is now doing some consulting work with William Baxter of New Rochelle, who operates an advisory service for investors. Joe said he believed there are unlimited opportunities now for young men in the nuclear energy field as physicists, chemists or electrical engineers.

Although retired from Consolidated Edison in New York at the end of 1950, Joe Gershberg, VI, refuses to sit it out. (He seldom misses one of these luncheons.) He is continuing to do consulting work, and is also trying to improve his golf game. Like Harrington, he admitted a deep interest in nuclear energy, particularly its industrial applications. His chief joy in life now, he says, is a trio of grandchildren. Cleon Johnson, X, is still operating his Spencer Products business from his home in Ridgewood, N.J., and hopes to have his son, Spencer, join him in the not too distant future.

We were delighted to have a newcomer in our midst — Isidore Spector, I, who for years has been in the insurance partnership of Spector and Chertoff, 123 William Street, New York City. He said he would certainly be regular in attendance now, for

he was having the time of his life. In insurance since 1932, Spector plans to retire soon. His two interests at the moment are painting and nuclear fission study. He and his wife have four grandchildren. Harry Tisdale, V, retired at the end of 1953 after 32 years with American Dye-wood, said he and Grace are very happy, having settled in Waterford, near New London, Conn. He is quite interested in photography and took a number of shots at the get-together.

Dick Ranger, VIII, reported a bit of a tough year for Rangertone, but now things are definitely improving with a real expansion developing in tape recorders for moving picture sound, as well as TV movie work. Particularly active now are educational and religious fields. Also RCA-Victor is now using Rangertone equipment, so all in all sometimes as many as 35 films are produced weekly, using Dick's magnetic tape recordings. Nat Seeley, II, came in as usual from Stamford. He is taking it very easy now and has been doing more trailer-travel. He brought greetings from Louise to classmates. Jim Campbell, I, had a message from Phil Caldwell, I, who almost never misses a class luncheon, saying that he didn't feel quite up to coming to New York today from his home in Pelham Manor, where he has been recuperating following a heart attack in late October. He said Phil is taking up painting, both oils and water colors, so there's another art exhibitor for our 1956 luncheon. For himself, Jim reported his firm of consulting engineers, Eadie, Freund and Campbell, just celebrated its fortieth anniversary and things are going fine. In the field of atomic energy, they have been active consultants in the structure and equipment of a large series of laboratories established in the past two years by Columbia University.

Bob Morse, VI, who like Phil Caldwell, was under the weather a year ago, reported looking fit and saying he was feeling quite like his old self. He plans retirement from American Gas and Electric Company on May first. This firm also has a sizable contract with the Atomic Energy Commission for its Portsmouth project and also is constructing two big power stations for other clients at present.

Dick Gould, XI, just back from a Gould family reunion in Honolulu, seemed to look younger than ever after this outing at his daughter and son-in-law's Hawaii home. He is now completely adjusted to retirement after 25 years last February. He is now doing some consulting work for Greeley and Hansen, Windy City consulting sanitary engineers.

Rufe Zimmerman, IX, retired U. S. Steel Corporation vice-president, after 37½ years with "Big Steel," says he still drops in occasionally at "71 Broadway" and is doing some consulting work, as well as advisory work for professional societies. Don Stevens worked on him all through lunch, trying to have him try painting, but he said he wasn't convinced yet. Don iced the cake by saying he was still continuing as a director of the Pater-son National Bank, adding that 1954 was a very fine year for him, both from the health and enjoyment angles.

Regrets were sent in by Sellie Seligman,

III. He and Daisy wrote from Kenilworth Lodge, Sebring, Florida. He advised that he is now making his business headquarters at 101 Tremont Street, Suite 708, Boston 8, Mass. Bob Haslam, X, retired, and like Zim, living in Short Hills, N.J., wrote in advance: "I have to be in Miami, Florida, for the first meeting of the Board of the Tropical Gas Company. This is a company formed this past year to sell liquefied petroleum gases in the Caribbean and Central America. One of the surprising things about this company is that Yale and M.I.T. are both substantial owners. Joe Snyder, Treasurer of M.I.T., is on the Board of Directors and will be with us on January 10 for the meeting. I hate to miss seeing you, Dennie, and will try to be at the 1956 get-together. Be sure to give the boys my very best regards." We had one letter returned, addressed to Edward Kennedy, III, 29 Clinton Street, Brooklyn.

It's great to hear that Riley Stoker Corporation (Fred Daniels, VI, chairman of the board) has just received its largest single order in its 41-year history. It is a \$7,000,000 contract for two re-heat type power plants, each the size of a 15-story building, with coal-pulverizing equipment to fire them, for the Indiana Public Service Company. A memorial exhibit of etchings by our famous late classmate, John Taylor Arms, IV, who died in October, 1953, received rave notices in Fitchburg and Boston papers, where the exhibit was shown successively. One Boston critic wrote: "A native of Washington, D.C., and graduate of Princeton and M.I.T., Arms went on to become not only a master of the graphic arts but an etcher with an enormous influence on the quality of the graphic art of our time."

Northeastern University (Boston) will break ground next June for a \$1,500,000 classroom-laboratory building on what is now the faculty parking lot on the Huntington Avenue campus, according to an announcement early this year by President Carl S. Ell, XI. Carl says this will complete N.U.'s campus plan and will be the fourth large building constructed in the last seven years. In the basement of the new building, expected to be ready for use in the fall of 1956, will be headquarters and equipment for the electrical engineering department, with the evening divisions occupying the first floor, the day college of business administration the second floor and 40 classrooms on the two top floors. At a headmaster dinner, held in mid-December by N.U. in its Student Center, President Ell had Baseball Commissioner Ford C. Frick as principal speaker.

Jim Duffy, VI, Chicago business engineer, wrote in late December praising the class notes in that issue and adding: "Had a bit of reminiscing last week when Clarence Hood, President of U. S. Steel, was speaker at our I.M.A. dinner. He started his career at the AS&W Cable Works in Worcester, just as you and I. I told him that although we both started on the bottom rung of the ladder, when I saw how high that ladder was, I knew I would get dizzy if I ever reached the top, so I shifted to a lower one after three years. He laughed and didn't seem a bit dizzy. Your mention of hurricane recalls an in-

teresting anomaly to me. Folks often refer to men as being talkative and windy, but have you noticed they name hurricanes after women?" My wife, Sara, wrote to Jim: "Perhaps they name 'em after women because they are hericanes." Jim has a son, Jim, Jr., due to graduate from M.I.T. in February, so I'm hoping to see or hear from him at that time.

O. W. Stewart, I, calls attention to the fact that in the January issue of the Bulletin of the Massachusetts Audubon Society there is an article titled "A Friendly Grouse," by none other than C. H. S. Merrill, I. It starts: "Ever since my wife and I moved to Exeter, New Hampshire, we have been delighted to find the large number of bird-watching spots in this area . . ." He writes, as he talks, says O. W. — at length, but most entertainingly. Aleck Yereance retired in late December from Prudential in Boston. No details yet, but his new address is 3905 North Upland Street, Arlington, Va.

Of course at this mid-January writing, only the figures through December 31 are available, but it is very encouraging to your class agent to find that in this Karl T. Compton Memorial Fund the average amounts per 1911 donations are up more than 50 per cent over last year at this time. The trend is the same practically all along the line and with the special appeal this year of a new "mysterious Mr. Smith" matching alumni gifts dollar for dollar, there seems a good chance that this year may mark the biggest and best participation by the Class of 1911 in the 14 Funds to date. Do your part! — ORVILLE B. DENISON, *Secretary*, Chamber of Commerce, Framingham, Mass. JOHN A. HERLIHY, *Assistant Secretary*, 588 Riverside Avenue, Medford 55, Mass.

• 1912 •

It is with great regret we note the death of Ernest W. Davis, II, who passed away at the Symmes Hospital in Arlington, last week. Ernest was a native of Auburn, Maine, and had lived in Arlington nearly 40 years. He was selectman for nine years, the latter part of the time serving as Chairman of the Board. He also served as moderator and was a member of the town finance committee.

He was director of Engineering at the Simplex Wire and Cable Company at the time of his death, having been with the Company for many years. He was president of Symmes Arlington Hospital, Director of the Arlington Co-operative Savings Bank and vice-president of the Universal Fund of Massachusetts. His wife Edith and son Richard of Needham survive him.

Carl W. Somers, IV, advises that he is traveling the whole state of Maine for Alonzo J. Harriman, Inc., of Auburn, Maine. They are architects and engineers doing more work than all the other architects in the state. Carl rates as Chief Engineering Inspector. Just at present he is located at the University of Maine in Orono, making trips from there to three other jobs. His work necessitates his taking a temporary apartment in some location which is near several of the jobs and only gets back to his home in Auburn, Maine, every two or three weeks. Carl enjoys Maine very much indeed.

Rock L. Comstock, X, writes that after retiring from the Morton Salt Company of Louisiana, that he has bought 40 acres of rough woodland in New Hampshire, feeling that he would much prefer to live here in the North even though the thermometer had gone to 8 degrees above zero before the middle of December. He is very busy getting the old house and woodland into condition and expects to operate a tree farm as the rocks are too thick for much of anything else. He would be delighted to see any of you at his home on Coburn Road, Milford, N.H., whenever it is possible.

Your Secretary called Eric Kebbon when in New York two weeks ago and found that he was just home from the hospital where he had undergone a minor operation. He expects to be back at work within the next week, feeling like a new man.

Jay Pratt, X, has been very helpful to your Secretary in advice regarding the soda fountain business, as he was executive vice-president of Liquid Carbonic for some 15 or 20 years. Our Company having just purchased the United-American Soda Fountain plant, which is next door to us here in Watertown, found ourselves in the soda fountain business knowing nothing whatsoever about it. Jay was in the East to help his mother celebrate her 90th birthday, so was good enough to lunch with me on his way back to Chicago. He is still at the District Ordinance Office in Chicago but under his arrangement has six weeks which he can spend in Mexico each Spring.

Jay reports that he had the pleasure of attending the marriage reception of B. V. Reeves', X, son at the Racquet Club in Chicago recently. Reeves is still with the New Jersey Zinc Company. Jay also reported that F. L. Mowry, XI, who retired October last from Swift and Company, is now living at 200 64th Street, N.W., St. Petersburg, Fla.

J. Howard Cather, IX, has retired from Eastman Kodak after 42 years with them, having gone there directly in 1912 after graduation. His first assignment was Inspector of Buildings and Power Plant Equipment and was later assigned to the Canadian subsidiary in charge of engineering. After returning from Army service in the First World War he became engineer in charge of power engineering development at Kodak Park, and superintendent in 1945. Under his direction was power engineering in all Kodak Divisions in this country and overseas, including steam and electric power refrigeration and water supply. He has been a member of the City of Rochester Planning Board for many years and has also served as a member of the City Planning and Housing Council and Monroe Planning Commission. He received the Fellowship Award at the A.S.M.E. luncheon in New York in September and also a life membership certificate from the Rochester Chapter of A.S.M.E. The Cathers are starting on a motor trip to the Pacific Coast and expect to return in July.

Max Levine, VII, mentioned in the Hawaii Health Messenger of October as having completed 40 years service in Public Health and was awarded the 40-year certificate from the American Public

Health Association. He had been very active on the Committee on Standard Methods of Water Analysis and the Committee on Diagnostic Procedures and Reagents. He has contributed materially to the 10th edition of Standard Methods of Water Analysis which is to appear shortly, and to the 4th edition of Diagnostic Procedures and Reagents which includes recommended techniques for the detection of bacteria associated with communicable diseases.

During World War II, Max was associated with the early work in the use of antibiotics, particularly penicillin, and he developed rapid methods for determining the susceptibility of bacteria to penicillin. Since 1947 Max has been with the Territorial Department of Health in Honolulu. His membership in professional societies is far too long to be included in this letter. Max had hoped to come to the States for our 40th Reunion and had made arrangements to do so. The unfortunate loss of his son, Dr. Eugene B. Levine, made it necessary to cancel their plans. Anybody traveling to the Islands should certainly look him up at his home, 348 Hind Drive, Honolulu. — FREDERICK J. SHEPARD, JR., *Secretary*, 31 Chestnut Street, Boston 8, Mass. LESTER M. WHITE, *Assistant Secretary*, 4520 Lewiston Road, Niagara Falls, N.Y. RAYMOND E. WILSON, *Assistant Secretary*, 8 Ogden Avenue, Swarthmore, Pa.

• 1913 •

Well, the barrel-bottom has been scraped bare or the fountain of news has finally run dry. Take your pick, but nevertheless no one has sent or communicated to us any information about themselves or any of our classmates. Why don't you retired tycoons take your pen, your typewriter, or slate pencil and describe your Life of Leisure? You still existing wage-earners call in that good looking blonde and dictate a few paragraphs of your every-day work or hobbies. You will find Fred's and Phil's addresses in the last sentence of this treatise.

We learn through the M.I.T. Alumni Register of the passing of our good friend and classmate, Perry G. Burleigh, Course II, and formerly with the National Fire Insurance Company, 2644 Lefcourt Building, Newark, N.J. We know that all who knew Perry are very sad at heart and we feel keenly the loss of our friend, who passed away December 12, 1954.

Many of our classmates are anxiously waiting for news of some of you writerless or speechless sons of 1913. Can anyone give us any news or information of any of the following: Francis H. Achard, Arthur K. Adams, Julian E. Adler, Gardner R. Alden, Ralph T. Alger, Mortimer P. Allen, Walter W. Alley, Herbert B. Alvord, Gustav Ambjorn, George W. Bakeman, Marion C. Balch, Philip S. Barnes, Wilfred W. Barrows, Murtha P. D. Barrows, Allan S. Beale, James M. Beale, Leland S. Becker, Harold E. Beckman, Harold B. Beebe, D'Elbert C. Benson, Franklin A. Bent, Raymond C. Bergen, Maurice G. Berlin, Jacob Bernhard, Alexander C. Besosa, Frederick W. Blackwood, Kenneth B. Blake, Leroy R. Block, William A. Bottomley, Lee Bow-

man, Winfred S. Boynton, John W. S. Brady, Raymond F. Braly, Harry Braude, Clarence W. Brett, Ellis W. Brewster, Edward M. Bridge, Karl R. Briel, Albert C. Brown, A. Lawrence Brown, Edmund G. Brown, William A. Bryant, Cedric Burgher, C. Lalor Burdick, Aubrey E. Burnham, Harry G. Burnham, Gene N. Burrell, Philip V. Burt, Allison Butts, Walter R. Bylund, Thomas S. Byrne, Herbert B. Cady, George A. Cahill, Winthrop E. Caldwell, Edward H. Cameron, Andrew W. Carmichael, Arthur W. Carpenter, Louis H. Carter, Henry M. Caswell, Silas H. Champlin, Sidney Y. Chen, Madison W. Christie, George H. Clark, Thomas A. Clark, John P. Coe, Paul V. Cogan.

When will you be ready for another reunion? Write us your opinion of when, where, and how. Well, another year has been clocked off. Won't you write Fred or Phil giving us some news of you and send the usual buck to Joe MacKinnon at the Institute?

The following changes of address have been received: Clarence J. Berry, Seven River Road, Round Bay, Maryland; William A. Bryant, Hotel Hemenway, Westland Avenue, Boston 15, Mass.; George A. Cahill, Box 51, East Dennis, Mass. — FREDERICK D. MURDOCK, *Secretary*, 88 Rumstick Road, Barrington, R.I. GEORGE P. CAPEN, *Assistant Secretary*, 623 Chapman Street, Canton, Mass.

• 1914 •

The Du Pont Company sends from time to time to their stockholders a little magazine called "Du Pont Stockholder." It was very pleasing to note that in the winter issue there appears a picture of our classmate, Roger Williams, who is vice-presidential advisor on research and a member of the Executive Committee of the company. The article tells that Williams, at a dinner in New York on January 14, received the Perkin Medal of the Society of Chemical Industry's American Section. This is the highest award in the field. It is the 49th award, and other well-known persons who have received this award include Irving Langmuir, Leo H. Baekeland, and Thomas Midgely, Jr. Williams is being honored for contributions to many phases of industrial chemistry, including the war-time atomic energy program and the development of synthetic ammonia and synthetic methanol.

The pleasure of seeing Williams obtain this high honor is dimmed by the fact that between the time of the announcement of the award and its actual presentation, Mrs. Williams died. She passed away at her home in suburban Westover Hills December 11 after a long illness. A son and three daughters survive.

Belatedly, word has also been received of the death of L. C. Tomlinson, who died approximately two years ago. Tomlinson came from Gencoe, Minn., and in recent years made his home in Gloucester, Mass. As his association with our Class had been largely in the field of graduate work, Tomlinson did not take part in class activities.

A new issue of the Alumni Register is about to be published, and questionnaires have been sent to all M.I.T. men. It is interesting to note that the only reply that

has been received from Russia is that of our classmate, Michael T. Ortin, who is Chief of the Research Laboratory of the Rare Metals, The Ural Ore Dressing Institute at Sverdlovsk, U.S.S.R.

Have you sent your contribution to the Alumni Fund? Remember this is a triple opportunity this year, first to the Fund, second as a credit to our Class' 50-year presentation to the Institute, and third to the Karl T. Compton Nuclear Science Laboratory. — H. B. RICHMOND, *Secretary*, 275 Massachusetts Avenue, Cambridge 39, Mass. H. A. AFFEL, *Assistant Secretary*, 120 Woodland Avenue, Summit, N.J.

• 1915 •

As you read these Notes final preparations are being made for our big New York City Class Dinner at The Chemists Club there. Hank Marion and Larry Landers have done an outstanding and monumental job in organizing this, and in Boston, reliable Henry will chaperone and tow down a gang to mix with the New York Classmates. Look for the exciting details in next month's Notes.

Unfortunately, some of our regular attendants will be away — Ed Sullivan: "Sorry I cannot be with you in New York for the event for I certainly would like to be there. I am sailing on the American Export Line for the Mediterranean on January 14 and don't expect to be back until the first of May. I intend to make short stops at all principal countries around the Mediterranean and will see you when I return. If any of the fellows have interesting places to go I will be a bum after January first and interested in traveling or work in foreign countries. My sister, Ann, is going with me. Best regards and happy New Year to you and your wife and all the fellows." Ken Boynton (from 328 Vanderbilt Road, Biltmore, N.C.): "As I retired from active business and moved away from New York at the end of last month, kindly note my new address. All good wishes for your health, happiness and prosperity in the New Year."

Otto Hilbert writes from Buenos Aires: "Sorry to miss New York dinner this year. Spent week in Belam and 1,000 miles up Amazon at Manous and now have tough weeks of business in Buenos Aires and on return a few days in Mexico. Very hot and even hotter than at the equator. Helen is with me and is thoroughly enjoying the trip."

Colonel Jim Tobey, Palm Beach: "Sorry I can't attend the New York festivities on the 21st but expect to be sun-struck or moonstruck by then. Will be here to mid-March suffering in the heat. Regards to all the young men." We'll miss these chaps whom we're always glad to have with us.

If you have not already sent your Alumni Fund check to Max, how about hurrying it along to get his quota up there ahead of last year. In the ten-year class group, 1910-1919 (for last year), with \$3,680 we're fourth in contributions; our average gift of \$27.80 gives us fourth place but \$43,403 total contributions since the beginning of the Fund ranks us second to Dennie's famous 1911 Class with \$44,629.

Clive Lacy and his special Gifts Committee for the Compton Memorial have done a wonderful job of collecting a high total that will put 1915 right up there at the top of the classes.

The next big exciting interest is our approaching Fortieth Reunion at the new Coonamessett Inn, Falmouth, Mass., on Cape Cod, June 10 to 13, with a cocktail party for ladies, guests, and families (whether you go to the Reunion or not) at The Algonquin Club, Boston, on Monday afternoon, June 13, preceding the Alumni Dinner later that evening at the Statler. Al Sampson and Barbara Thomas have completed all plans for this party, which was so delightful last year. Plan now for the Reunion — details later.

Parry Keller is lifting a page from 1915 for his Akron University Club News which he writes, edits, prints, publishes, and maybe even delivers: "I just ran out of gas in working out this issue. I am seriously considering starting a drive out here to 'help Parry.' This same pitch over the years on your part, Azel, has certainly paid off. I wish to say the 1915 Notes in The Review are getting better and better as time goes on. I enjoyed Jim Tobey's most interesting article in the November issue of The Review, entitled, 'The Process of Aging'."

Al Sampson was recently elected vice-president of The Drysalters Club of New England, a group of executives in the textile chemical and dye manufacturing companies in New England. Founded March 11, 1885, Drysalters is one of the oldest business-social clubs in the nation. This is in addition to his active membership in American Association of Textile Chemists and Colorists of which he is National Treasurer (another M.I.T. man, Ray W. Jacoby, 1910, is President), the Newcomen Society and the Beacon Society. In his spare time Al is New England Manager for National Aniline Division, Allied Chemical and Dye Corporation, with offices at 150 Causeway Street, Boston.

Among other busy classmates who can still find time to serve 1915 faithfully is Max Woythaler, Class Agent. After retiring a few years ago from the presidency of Hodgman Rubber Company, Framingham, Mass., where Wink Howlett is one of the sales managers, Max and Catherine traveled extensively and then he joined the Board of The United States Renegotiation Board in the Boston Office. During World War II, Max was an industry member of the Rubber Industry Advisory Committee to the War Production Board.

Jack Dalton was elected president of the Board of Governor Dummer Academy in South Byfield, Mass. He had been a member of the Board of Trustees since 1940. Congratulations to these classmates who have proved the truth of the old line, "... give a busy guy any hard job you want done. ..."

Many, many Christmas cards from classmates all over the country warmed our hearts with a sentimental and nostalgic touch of the years that have marched by since 1915 to make these old friendships closer and dearer.

Avice and Hen Berg, San Francisco: "With the aid of good health and planning we are looking forward to seeing you

next June. Imagine it being the 40th!" Helen and Phil Alger, Schenectady (supplementing their annual holiday poem): "We're hoping to see you at our 40th—but do provide plenty of good rocking chairs for us oldsters to rest in." Ray Stringfield, Los Angeles: "Have been looking for you to come out here to investigate our smog. I'll bring some to the 40th Reunion if my old heart behaves itself. I've been feeling pretty well since the wing-ding it pulled last year in Wilmington. I had what the doctor labeled 'renal colic with lithiasis' (kidney stone to you) last September, which is a rather poor way to lose 12 pounds. Otherwise, no excitement except just getting older. Lucile has more pep than I have and lately plays better Canasta." Evelyn and Sam Berke with whom we had dinner in Boston while they were visiting Evelyn's son, John J. Desmond, a freshman at M.I.T.: "It was so nice to see you and Sam enjoys being with you so much. We hope to be in Boston again in March, certainly before June!" Henry Sheils has to stick a boast on his Christmas card: "All the best from the Sheilses including the four children and 10 grandchildren." Can any classmate tie that figure 10? Sophie and Ben Lapp, Buffalo: "Sorry we haven't seen each other for such a long time. Did try to look you up this summer but you were out the day I was in town (you can check this with Al Sampson, whom I did see). Boy, I'd like to play you gin rummy. You'd be my meat! We're all fine, and hope you and Fran are. Daughter Evelyn lives in New York; son Marsh is in his 5th year of Engineering Physics at Cornell and is looking forward to graduate work next year." Sweet Ruthie Place, Pasadena, sounds as gay and as cheerful as of old: "Aren't you ever coming out to see me? I carry on but how I do it, I will never know. But my life is kind of fun, now. I've just settled down to being grandma to my two blessed granddaughters." During the 1954 hurricanes here Loring and Ruth Hayward suffered severe damage and loss in their beach property on Cape Cod. Loring is a civil engineer in Taunton, Mass.: "We've boarded up the cottage for the winter and are now 'loaded' with new and interesting Course I work, fortunately." Vince and Marion Maconi, New Haven, with whom several of us passed up a date at the Harvard-Yale Football Game in November because of the weather, and age: "We did enjoy the game in spite of the score and weather." On a colorful and strikingly attractive holiday letterhead, Archie Morrison penned a message: "This is to wish you and Fran a good old fashioned Merry Christmas and a Happy New Year and no more illness. And, I hope that I may look forward to more good times with you both."

There were pictures of homes and estates: Alice and Herb Anderson's "Wind-ing Brook Farm," Prospectville, Pa., Margaret and Chet Runels' big snow covered house in Lowell, Mass., and a view through the glass wall of Bee and Charlie Norton's "Greenwood" on Martha's Vineyard, Mass.

This retirement age is fast creeping up on us. Edith and Ken King have finally settled at 1354 Rhoda Drive, LaJolla,

Calif. Their card shows their attractive ranch type house. The Ken Boyntons you've read about in the Notes above, and Tess and Gabe Hilton have finally decided it. Tess wrote from Butte des Morts, Wis.: "You no doubt were surprised at our moving to Wisconsin. After Gabe retired it was a toss up whether we should move here or go down to Florida. We thought about it for a long time and this is what we decided. We expect to get to Boston in June and will give you details. Know you both will want to come out here and I'm sure you'll be delighted with the scenery. Think up all the good stories you can, I'm sure I'll be in need of a good laugh after being out in the wilds, and as for my 'boy friend,' the now gentleman farmer, it's your guess as well as mine!" Alice and Lloyd Chellman plan to attend our 40th Reunion in June from their retirement at 131 Wayne Drive, Wilmington, N.C.

So here endeth the Notes with a belated but nevertheless sincere and friendly wish to all my classmates for good health, good cheer, and good fortune every day in 1955, and a strong urge to come to our 40th Reunion, June 10-13. — AZEL W. MACK, *Secretary*, 40 St. Paul Street, Brookline 46, Mass.

• 1916 •

We wish to thank Bill Barrett, Hal Neilson, Ed Weissbach, Steve Whitney, Bill Drumme, Izzy Richmond and Meade Bolton for their holiday greeting cards. We commend Izzy on his artistic talent as displayed in his card by his drawing of "The South Slope of Beacon Hill and Historic Boston Common," and Bill Drumme on his wonderful silhouette painting of "The Madonna and Child," and Meade on his personal reproduction of "The Church of San Luis Rey de Francia, 1798." On Meade's card he wrote: "Helen joins me in wishing you peace, happiness and the True Spirit of Christmas, and a Happy New Year. I had a fine time at our Class Reunion. We visited this old Spanish Mission not long ago, and this print is of a sketch I made while there. Although not the oldest of these Spanish Missions it is perhaps the most typical. A thin, old padre (a 'Brother' not a priest, he explained), acted as guide through this interesting picturesque church and cloister, partly in ruin."

Nat Warshaw, in addition to wishing us a Merry Christmas and a Happy New Year, had this to say in his recent letter: "I enjoyed reading the December Review very much indeed and thanks for the compliment. The thing that really intrigued me was Dick Hunneman's letter to the Boston *Herald*. He really had a lot of 'rocks' heaved at him but believe it or not, for the first time in my life I wrote to the Boston *Herald* endorsing Dick's stand in the matter and included various and sundry observations I had made with regard to automobile driving in my own over 40 years of experience with these 'lethal weapons.' I also made it a point to send a copy of the letter to John Volpe, who is our Commissioner of Public Works. Whether or not he paid any attention to my remarks, I don't know, except that recently I noticed a very bad spot that was particularly hazardous has

been corrected and I am optimistic enough to believe it may have been due to my letter. The thing that burns me up is the fact that we are killing people at a far greater rate than losses suffered in all the Wars and most all of us just sit on our 'fannies' and do nothing about it. If a war was involved we would all start waving the flag and being sorry we couldn't join in the fight ourselves. Sometimes I think if the Communists wait long enough we will all massacre ourselves on the highway.

"But I do want to say in addition that my letter was finally published, or a part of it, in the *Herald* a couple of weeks ago and sure enough I am beginning to get brickbats, too, because all I suggested was that they make the right-hand lane on the road to Worcester, the fast lane, and they make the left-hand lane, the slow lane, so that people turning through the openings provided will turn from a slow lane into a slow lane with what I feel is much less danger. At the present time, assuming that the left-hand lane is the high speed lane, they turn from a fast lane into a fast lane and the results catastrophic, so for awhile I expect that the brickbats will be deflected from Dick to me. Actually, when I read Dick's letter I didn't realize at the time that it was our own Dick Hunneman that was responsible but I should have guessed.

"I am taking the liberty of enclosing a little booklet which we have just got out called 'Why the Small Fork Truck.' I think that you will see that there has been a great deal of time and effort spent in preparing this booklet. It really is not an advertising piece. I have merely tried to put into it some of the information that engineers often require in determining the answer to some of their problems. The book is not for sale even though there is a price shown on it. That is merely to indicate that it has some value. We are not distributing them wholesale but if any of the boys would like to have a copy of this 28-page booklet covering Fork Trucks and want to spend a three-cent stamp to write to the Market Forge Company (Everett, Mass.), I will be glad to send it to them with my compliments and promise not to pester them with salesmen. We only printed a limited quantity and I am not sure that we will get out another edition. I would like to mention though that the Associated Industries of Massachusetts gave us a citation or what they called a Merit Award which enabled us to exhibit our Fork Truck at the State House the past month."

George Petit is doing a very creditable job with his "Trend Analysis," a service in which he analyzes developing situations with respect to both construction costs and volume. Recently, we were pleased to note that Humphrey B. Neill, who publishes "Neill's Letters of Contrary Opinion," referred extensively to George's analysis of the construction industry's outlook, in terms of costs and volume.

Continuing on with Joel Connolly's interesting letter about his experiences in and around the Philippines, he writes: "During the rainy season many streets in Manila were flooded. Some areas are always flooded when a high tide and heavy rain happen to coincide. The range of the

tide, here, seems surprisingly small to people, like us, who are used to Cape Cod tides. Here the range is only about four feet between high and low tide. A trip we made together recently was to see a 'fluvial parade.' This was held at the town of Bocaue, a few miles north of Manila. Gaily decorated boats, with 25 to 30 paddlers in each, circle around and around a huge float, also decorated. It is a combination of religious festival and an occasion for splashing water on everyone 'to wash away their sins.' Often they are so eager to expiate sins that they sometimes upset another boat. The paddlers in each boat are dressed alike, and paddles and boats are painted to match their dress.

"Along with a parade from the main church to the river bank are old ladies in fancy costume dancing the fandango in the streets. This street parade precedes the fluvial parade. A cross is carried to the river and installed on the upper floor of the large float, which rests on two long boats, each made of an enormous hollowed-out log. The costumed ladies dance and a small brass band plays on the lower floor of the float, as it is slowly poled up and down the river. An alert policeman surprised one of our party, by snapping handcuffs on a couple of pickpockets who were after his wallet while we were watching the street parade. At Apalit, Virginia and the other 'strangers' went in boats and got soaked to the skin in the sin-washing. At Bocaue, we and hundreds of others stood on a bridge to watch. On both occasions, a sumptuous dinner was served. At fiesta time, every relative and friend is expected to come to town and be fed. Joel happened to be in Calamba, Misamis Occidental, on a fiesta day, in the course of his work. On finishing lunch in a restaurant he was pleasantly surprised when the owner refused to let him pay for it because it was fiesta day!" More of this next month.

We were pleased to receive word of the marriage of Norman Vile to Emma Marie Kasey in Baltimore, Md., last November. Best wishes for much happiness, Norman.

In a recent press release announcing the consolidation of the State Street Trust Company and The Second National Bank of Boston, it was noted that Thomas W. Little was among those who will serve on an Advisory Committee "to attend Directors' meetings so that their advice and counsel will be available to the bank." We note with interest that Ralph Davies now has his office in the new office building of the Aluminum Company of America (3070 Alcoa Building), Pittsburgh, Pa.; that Leonard Besly has moved to 28 Pinckney Road, Red Bank, N.J.; and that Ed Williams is now located in North Falmouth, Mass. (Box 432). We also received word from Larry Knowlton that he is now living on Diamond Hill Road, RFD No. 1, Manville, R.I.

We have heard from Earl Mellen who says that contacts with other 1916 men are rather limited. He spent the summer in Europe with his wife and daughter covering some 11 countries, flying most of the time. He goes on to say, "We have six grandchildren with more on the way. I keep bumping into M.I.T. men from time to time in travels and meetings and

am always glad to talk to them about M.I.T. When, however, I talk to young men graduating in the 30's and 40's, it makes me realize how old I am becoming. I bumped into Howard Coonley of the Research Corporation this past week and he told me that Joe Barker was on a special mission to Europe for the State Department."

Vert Young writes from Bogalusa, La. (he is Executive Vice-president of Gaylord Container Corporation with general offices in St. Louis), saying that he hasn't any news of particular interest other than that his wife and he took a three-weeks trip to Alaska in September. He says, "We went up by boat through the inside passage and spent eight days in the mountains between Anchorage and Fairbanks hunting caribou and moose. We both got a caribou (my wife's much the better head!) and I got a fairly nice bull moose. That is a trip that I can heartily recommend to any of the 'sixteeners who are fond of hunting."

In a little note from Ray Brown recently he mentions that he was sorry he could not make the class reunion last June on Cape Cod. Others have expressed regrets and perhaps the 1955 Reunion will be a bigger and better one.

A recent note from Art Caldwell saying that he is sorry that he has no real news for The Review but that "things have been going along at the same old pace in the same old way for so long that a mere recital would be dull reading for everybody." He congratulates the Secretaries, saying they have done a swell job (hear, hear!) in getting stories from the various members of the Class and from what he reads, most of them lead much more colorful lives than he has been able to.

It is with deep regret that we report to you the passing (12/1/54) of Melville Rood, who was living in Arlington, Mass., and who had retired in 1949 from Arthur D. Little, Inc., after 25 years of service.

In only a few months now the "old grads" will be returning to M.I.T. to take part in the Alumni Day activities. We sincerely hope that more of our Class will take advantage of this opportunity to come back and renew old acquaintances. The date is Monday, June 13. Our Class will hold its annual Cocktail Party at the Statler Hotel in Boston on that day from 4:45 to 7:00 P.M. Bring your wife and other members of your family to this party. We would be very happy to see them. Keep June 14 and 15, Tuesday and Wednesday, open on your calendar and join with members of the Class in an informal reunion at the Chatham Bars Inn in Chatham (Cape Cod) Mass. Mark it down now so nothing else will interfere with your being with us, and if your wife wants to come, too, bring her along as well. — RALPH A. FLETCHER, Secretary, P.O. Box 71, West Chelmsford, Mass. HAROLD F. DODGE, Assistant Secretary, Bell Telephone Laboratories, Inc., 463 West Street, New York, N.Y.

• 1917 •

The following pronouncement from our distinguished Class President, Stan Dunning, was a most pleasant one for your Class Secretary. Addressed to Win Mc-

Neill, it read: "It is my pleasant duty to inform you that there has been not a single negative vote to your election as Assistant Secretary to the worthy Class of 1917. I trust that you will see your way clear to accept the honor." Win has served as Special Correspondent many times in the past, and we are delighted to have his full-time cooperation.

Max Angas, now retired from the Navy and living in Princeton, N.J., is scheduled to play "the father of the bride." His daughter, Roberta Martin Angas, recently became engaged to George Bruce Douglas III of Frederick, Maryland. Here is a recent communique from Neal Tourtelotte: "Enos Curtin called me from New York City last Monday night, said that he was on his way to Japan and wanted Janet and me to have dinner with him during his change of planes at Seattle. Janet was in Washington, D.C., but I went down and met him at 7:15 P.M. We yak-yaked away until he left at 9 P.M. Of course, as you know, Enos lives a fantastic life. In his capacity as an advisor for some large industrial firms he travels all over the world. And here is the coincidence: He is going to Japan to meet our Commodore W. A. Sullivan, then both to Korea to consult with President Syngman Rhee about a big industrial development. Sully has the plans, Enos has the entry to Rhee from former contacts. Who would ever have imagined back in the days at M.I.T. that those two would be thrown together in such a place? Enos wants to get back home for Xmas. If the Korean business is quickly lined up, he goes home via Arabia, and so forth, where he has more business. If he is delayed, he will return through Seattle and we will meet again. If he goes home via Arabia a peculiar situation arises which we were laughing about. Enos left here December 7 in the evening and arrived in Japan the next afternoon. But it isn't the 8th in Japan. It is the 9th. You know, the *Date Line*. Now, if Enos goes home via Arabia, he never recovers that date. As far as his life is concerned, there never was a December 8th!"

We went out to see the new home of Royal Barry Wills'18 and found there another architect, Leon Keach. We both admired the home, an architect's own dream house, the product of many years of thought and a knowledge of how to design for living. Across the road but out of sight are the tennis courts of the Winchester Country Club, where Bill Wills still wins tournaments. Keach promised to reform (it seems that Harry Sandell had been working on him) and to attend future 1917 gatherings. He had seen Jim Flaherty lately, who in turn was in touch with Nelson Chase, but otherwise had spent his time architecting with a Boston firm and commuting to Melrose.

I. B. Crosby is off again for the Philippines, possibly for a two or three months' stay. This will be his fifth trip as consultant to the National Power Corporation of the Philippines, and his present problem concerns the dam at Ambukalo, the first under construction in their hydraulic development program. The dam is 425 feet high.

The Houston, Texas, *Chronicle* announces that Richard T. Lyons will serve

as president of the South Texas chapter of the M.I.T. Alumni Association for the next two years.

Another '17er in the news is Barney Dodge. His picture recently adorned the pages of the *New York Times* as president-elect of the American Institute of Chemical Engineers for 1955. Besides being Professor of Chemical Engineering and Chairman of the department at Yale University, he found time to give a paper on the "Effect of Hydrogen at High Pressures on the Mechanical Properties of Metals" before the annual meeting of the A.I.Ch.E. in New York in December.

Two of your classmates, Win McNeill and Joe Littlefield, have each been respectively chairman of two committees of the M.I.T. Club of New York concerned with promoting alumni activities in the greater New York area. The first committee has selected a full-time local alumni secretary, and the second committee is looking for suitable club quarters in the mid-town New York area.

President Killian, Lobby, and officers of the Alumni Association in Cambridge and New York have all felt the need of more organized activity among Alumni. It is hoped that a paid secretary, together with acceptable quarters for the New York Club, will be the means of accomplishing this result.

Dix Proctor reports a very pleasant luncheon with Ray Brooks at the Bell Laboratories at Murray Hill, New Providence, N.J. Dix was much impressed, not alone with the very pleasant dining facilities, but also with Ray's status, using Dix's words, as the "Grover Whalen" of the Bell Laboratories. Dix reports preparing for another cruise from New York to Bermuda and thence through the Virgin Islands. He claims that this kind of a vacation is the best way to forget business.

You will recall the publication of the 1917 Class History on the occasion of our 30th reunion under the most effective supervision of Tom Meloy. The following suggestion has been received to accomplish two purposes: 1. Provide interesting, current information on the activities of classmates for this monthly column. 2. Build up data for the preparation of a revision of the Class History on the 40th or 50th anniversary.

The proposition is for each member of the Class to send the Class Secretary an annual letter, on the occasion of his birthday, including such news about himself, his family, or about his business, social, or political activities, as would be of interest to his classmates. If you are interested in keeping up-to-date about Class news, the best way to show your appreciation is to contribute your annual share. What do you think of the idea?

Dick Loengard has graciously taken on the job of helping the Class to organize its efforts in behalf of a 50-year gift to the Institute which will maintain the high standard of Class interest in Institute affairs that has been characteristic of class members ever since graduation. Dick will appoint a committee at an early date to help him in this important, long-distance objective. — RAYMOND STEVENS, *Secretary*, 30 Memorial Drive, Cambridge, Mass. W. I. MCNEILL, *Assistant Secretary*, 270 Park Avenue, New York City.

• 1918 •

On January 8, as scheduled, the New England brethren assembled in conclave at the University Club, Boston. We were, indeed, as Ken Reid said, practically in the very spot where the M.I.T. Union was on Trinity Place when we were freshmen. Remember the old, beaten up piano? Remember the chicken pie at the lunch counter with two necks in it? Present on this occasion were the following, each happily accompanied by his wife: Eli Berman, Sam Chamberlain, Lester Conner, Charlie Dow, George Ekwall, Carlyle Fiske, Clarence Fuller, Al Grossman, Johnny Kilduff, Alexander Magoun, Ralph Mahony, Ken Reid, Max Seltzer, Chink Watt, and Bill Wills. Having been filled with costly groceries, we had two delightful informal talks. Sam Chamberlain shared a few of his experiences — domestic and foreign — including the fact that in a recent divorce trial the wife had indiscreetly kept a record of her rendezvous on one of his New England calendars. Two French youngsters he once tutored in Algebra, both became artists whose modern abstractions are as mystifying as the algebra. He also described the magnificent experience of learning to speak French from the cook.

Ken Reid described life running at full throttle on his Vermont farm after many years as an editor in New York. Said acres, it seems, once constituted the poor farm at East Dorset. Ken said nothing about ancestral voices to be heard among his trees at night, saturated with hardship, yearning, and stoicism. He did tell about meeting a 105-year-old neighbor at a square dance, and the man who fell 22 feet, breaking an ankle when a sudden thaw came in the spring.

With the spirit of the occasion set on this exuberant level, we went around the table, each in turn recounting how he came to go to M.I.T. Some didn't know why. Some said the opportunity for a scholarship clinched it. Some said because they expected to be able to earn more in engineering than in commerce. One said as a lad he used to ride the trolley car down Boylston Street and envied the young men loafing on Roger's steps. One solved the impasse of a grandfather who wanted him to become a clergyman, a mother who wished him to be a physician, and a father who had dreams of his son becoming a lawyer. Somebody got 27 per cent on a Latin exam in high school, fleeing in fear and sorrow to science. We cannot quite make up our editorial mind whether the reasoning of the classmate who followed family tradition by becoming a fifth generation engineer should be greeted with murmurs of pleasure or squeals of outrage. Certainly that's as good a reason as, "My older brother told me to." The crowning reason was given by one of the architects who confided that while building a tree house, he hammered toward himself, missed his aim, and lay knocked unconscious while mother and aunts decided the way to correct such hazards in future was an M.I.T. education. One thing we seemed to conclude unanimously was that whatever the reason for our going, among the finest treasures we took

away was our relationship with one another. — F. ALEXANDER MAGOUN, *Secretary*, Jaffrey, N.H.

• 1919 •

Bob Insley has been appointed chief product engineer for the Aircraft Engine Division of Ford Motor Company at Chicago. Bob has been an aircraft engine design specialist for 34 years and co-authored the book, *Aircraft Power Plants*. He has been manufacturing vice-president of Continental Aviation and Engineering Corporation in Detroit. We congratulate him and wish him well in his new position.

Our sympathy is extended to the family of Warren Maynard, who passed away January 8, after an illness of two months. He leaves his wife Helen and two sons, John A. of Winchester, Mass., and Robert L. of South Freeport, Maine, and two grandchildren. He was for 35 years traffic engineer for the New England Telephone and Telegraph Company. Warren was always active in helping out on class reunions and we shall miss him.

Wirt Kimball writes that nothing has changed with him — everybody in good health and business remaining satisfactory. His son, now returning from the Mediterranean, is due for his release from the Navy in April after his four-year hitch and probably will head for college next fall. George Irwin is now retired from the Army and expects to live in Del Ray, Fla. He has also retired from business, turning it over to George, Jr., and his son-in-law, James Collins. Glad to have news from Harold Kaiser, who sent Christmas and New Year's greetings to all. His son Howard graduated from St. Lawrence University last June, making it impossible for Harold to attend our Reunion, and is now a second lieutenant in the 11th Armored Regiment. Harold's older daughter, Shirley, is now with her husband, Lieutenant D. H. Baxter, in Anchorage, Alaska, for a two-year term. His younger daughter is a freshman at Skidmore College. Ev Doten spent a weekend with the McCartens shortly before Christmas and reports that George has made remarkable progress, can talk all right, and can get around the room a bit with the aid of knee brace and cane. He is also beginning to pick up his business. Larry Riegel is now Chairman of the Board of Riegel Paper Company. — EUGENE R. SMOLEY, *Secretary*, The Lummus Company, 385 Madison Avenue, New York City, N.Y.

• 1921 •

Extra! Mel Jenney will be the Chairman of our 35th Reunion, to be held in 1956 on June 8, 9 and 10 at the Sheldon House, Pine Orchard, Conn. Mel has accepted a tough challenge with the goal he has set to carry out a reunion program which will excel the toppers we have enjoyed in the past under the direction of other capable leaders. An enthusiastic attendee at all of our past reunions and a member of the committee on arrangements for the more recent ones, Mel is well equipped to put on a show that will be enjoyed alike by both first-timers and old hands at our good-fellowship gatherings. A partner in the Boston patent law firm of Kenway, Jenney, Witter and Hildreth, he is also

on the patent counsel staff of Technology's Division of Industrial Cooperation. He lives in Melrose, Mass. His older son, Richard, M.I.T.'52, is a graduate student and research assistant at the Institute. We know that everyone will want to thank Mel for accepting the responsibility for this major undertaking. The best way is to plan now to be there in 1956 and to tell him so in person.

Many members of the Class of 1921 have active parts in the official Institute family as well as in the Alumni Association. William J. Sherry has been honored by being elected an Alumni Term Member of the M.I.T. Corporation. John T. Rule continues in charge of Course IX on General Science and General Engineering, and is also Professor and Head of the Section of Graphics. Walter M. Fife is Associate Professor of Structural Engineering in the Department of Civil and Sanitary Engineering. Edward R. Schwarz is Professor of Textile Technology in charge of the course. Victor O. Homerberg has been *Emeritus* Professor of Physical Metallurgy since his retirement several years ago. Vic now lives in Santa Barbara, Calif.

Among those active in the Alumni Association, of which Warrie Norton is a past president, are Mich Bawden, who is a member of the Committee on Nominations for Departmental Visiting Committees; Chick Kurth, who is our Class Representative on the Alumni Council; and the following Council representatives of local M.I.T. clubs: Mich Bawden, Josh Crosby, Mel Jenney, Frank Kittredge and Ace Rood. Helier Rodriguez is Review Secretary of the M.I.T. Club of Cuba and also a member of the Alumni Visiting Committee on Foreign Languages. Jack Barriger is a member of the Visiting Committee on the Institute Libraries. Tom Bartram serves as President of the M.I.T. Club of the Kanawha Valley, Charleston, W. Va. Larry Buckner is a Vice-president of the M.I.T. Club of Central Pennsylvania, Harrisburg, Pa. Ed Praetz is President of the M.I.T. Club of the Merrimack Valley, Lawrence and Lowell, Mass. Manuel Vallarta is President of the M.I.T. Club of Mexico, Mexico D.F. Sam Lunden is a Vice-president of the M.I.T. Club of Southern California, Los Angeles, Calif. Joe Wenick is Treasurer of the M.I.T. Club of Northern New Jersey, Newark, N.J. Bill Emery is Vice-president of the M.I.T. Club of Oklahoma, Tulsa, Okla. Honorary Secretaries and Counselors of the Educational Council of the Institute include: Wally Adams, Paul Anderson, Cac Clarke, Ed Farrand, Harry Field, Si Freese, Munnie Hawes, Sumner Hayward, Irv Jakobson, Ed Lockwood, Sam Lunden, George Pollock, Helier Rodriguez, Gene Rudow, Ray Snow, Glenn Stanton, Si Travis and George Welch.

The annual report of President James R. Killian, Jr., '26, lists publications by members of the Faculty, including an *Atlantic Monthly* article by Jack Rule on "Motion Pictures vs. Television," and two items by Ed Schwarz, an article on "Photomicrography with the Polaroid-Land Camera," appearing in *Modern Textiles*, and the entire chapter on "Fiber-Testing Methods" in the sixth edi-

tion of *Textile Fibers*, the latter done jointly with H. R. Mauersberger. Also mentioned in the report are special gifts, in addition to our Alumni Fund contributions, from Ernie Henderson, Dug Jackson, Jr., Irv Jakobson, Bob Moore, and Al Wechsler as well as bequests added to the scholarship fund established many years ago in memory of the late John A. Grimmons.

Palmer Scott, manufacturer of Palmer Scott Boats, head of the New Bedford shipyard bearing his name and also of the firm of Marscot Plastics, Inc., makers of injection molded hulls, featured his Marscot 22 bass boats, day boats and cruisers at this year's National Motor Boat Show in New York. Palmer makes a series of wood and glass fiber boats from four to twenty-six feet long, including paddle boats, beach boats, rowboats, sailing prams, sloops and cruisers. Andrew I. McKee, retired admiral and now director of research and design for the Electric Boat Division of General Dynamics Corporation, spoke on "Submarine Design and Construction" before a recent meeting of the Cornell Society of Engineers in Boston. A feature story in the Springfield, Mass., *Sunday Republican* tells of the many interests of Ernest Henderson, President of the Sheraton Corporation of America, the nation's second largest hotel chain. In addition to the business miracle which he and his Executive Vice-president and former college roommate, Robert L. Moore, have achieved in putting together the 160 million dollar group of hotels and office buildings, Ernie is described as having become an accomplished hobbyist as a composer of music, a photographer, antiquarian, aviator, radio ham, wood and metal craftsman, surveyor and linguist.

One of the most pleasant parts of this stewardship as a Class Secretary is the receipt of communications, particularly at Christmas time. Among the recent greetings which arrived from classmates and other Alumni are those from Jack Barriger, Max Burckett, Phil Coffin, Obie Denison '11, Bev Dudley '35, Gef Farmer '22, Harry Field, John Frishett '56, Sumner Hayward, Dug Jackson, Jr., Jack Kendall, Jack Kriz '41, Chick Kurth, Moose LeFevre, Joe Maxfield '10, Bob Miller, Gus Munning '22, Helier Rodriguez, Ray St. Laurent, Paul Smith '51, Lem Tremaine '23 and Carlton Tucker '18. The attractive *alohas* from the Fields include a group picture of Harry and Catherine, Pete and Janie, John and Jackie with their son, John Dudley Field, Jr., reported to be headed for the M.I.T. Class of 1974. Dug and Elisabeth Jackson have built a new home in Harford County, Maryland, not far from Dug's Ballistic Research Laboratories at Aberdeen. Jack and Marge Kendall sent a pictorial introduction of their first grandchild, William Scott Kendall, son of Jack, Jr. Jack says that their temporary home is an apartment at 325-C Raymondale Drive, South Pasadena, Calif., pending the completion of their new home in the same city some time this year.

Dana C. Huntington is Vice-president of the Dennison Manufacturing Company, Framingham, Mass., according to an illustrated feature article in the *Fram-*

ingham News, which the dean of all class secretaries, Obie Denison, Secretary of the famous Class of 1911, sent to us with a welcome note of greetings. The clipping shows Dana viewing the attractive holiday ensemble prepared by his advertising staff from the thousands of items produced by the hundred-year-old firm. Many thanks, Obie! Mr. and Mrs. Thomas B. Card of Fairhaven, Mass., have announced the marriage of Mrs. Card's daughter, Diana Hathaway Metcalf, to Gregory Stainow last December 18 in Boston. The couple now make their home in New York City. Zam Giddens, formerly of Dallas, Texas, has advised the Alumni Office that his home is now in New York City. New addresses have also been received for Dr. William R. Hainsworth, Professor Victor O. Homerberg and Norwood P. Johnston.

It is with heavy heart that we record the passing of three members of 1921 and extend sincerest sympathy to their families on behalf of the entire Class.

Louis Leucht Rosen of New Orleans, La., died on November 25, 1954, according to advice from his son, Charles. He was associated with us in Course I.

Mrs. Malcolm B. Lees, nee Esther Marie Cornelia Nelson, died on December 18, 1954, in Ridgewood, N.J. Born in Cambridge, Mass., she prepared for Technology at Cambridge Latin School and was graduated with us in Course IV. At the Institute, she was active in the Architectural Society, as the president of Cleofan and as a member of Masque, the Tech Show honorary society. She kept up her art and architectural work in many ways, including the design of her own home, illustrations for Mrs. Sumner Hayward's book and in extensive watercolor work which was frequently exhibited in shows of the Ridgewood Art Association of which she was a member. She was also active in the College Women's Club and the League of Women Voters. Married to Malcolm B. Lees '20, she is survived by her husband; two sons, Nelson C. Lees, M.I.T.'53, and Malcolm, Jr.; and her mother, Mrs. Eskil G. Nelson of Watertown, Mass. Respected and admired by all who had the privilege of knowing her, Connie had a keen mind, tremendous talent, wide interests and sympathies and a host of friends.

Adolph G. Denbin, Chief Statistician of the Baltimore Transit Company, died on December 27, 1954, in Baltimore. Born on February 2, 1891, in Brockton, Mass., he prepared for the Institute at Brockton and North Easton High Schools. He was graduated with us in Course VI. At Technology, he was a member of the Electrical Engineering Society, the Cosmopolitan Club and the Radio Society. He had been with the Baltimore Transit Company since graduation, concentrating on the operating phases, and had been assistant superintendent of power prior to undertaking statistical studies of the operations and finances of the company. He was a member of the American Institute of Electrical Engineers, the American Transit Association, the Engineers Club of Baltimore, the Maryland Academy of Sciences and the Society of Professional Engineers. He was president and a director of the Lithuanian National Building and

Loan Association and active in the Mt. Washington Community Association and local political clubs. He had published a number of articles, including "Forecasting for Our Industry," "Curve Segments" and "Operating Characteristics of Segments." He is survived by his wife.

Also on behalf of the entire Class of 1921, we wish to extend sincerest sympathy to Henry R. Kurth on the death of his wife in Cambridge on November 5, 1954. Frieda will be affectionately remembered by many 21'ers and their wives for her friendly hospitality at all of our annual Class parties on Alumni Day and at the All-Technology alumni gatherings which preceded the modern Alumni Day.

Reminder: Our next Class meeting will take place at 5 P.M. on the afternoon of Alumni Day, Monday, June 13, 1955, at the Statler Hotel, Boston. Hope to see you there. — CAROLE A. CLARKE, *Secretary*, Federal Telephone and Radio Company, 100 Kingsland Road, Clifton, N.J.

• 1923 •

A note from Charles F. Woodbury, VI, stated he retired from Western Union in March, 1954. He and his wife are enjoying the new leisure very much, having made a trip to the Canadian Rockies last summer and now spending the winter in Winterhaven, Florida. Their only son is married and they have a little granddaughter, born last December.

Did you see the picture of Alfred E. Perlman's, XV, new Railmobile featured on the front page of the New York papers last December? It is a converted Chrysler, running on oversized tires with flange guidance wheels fore and aft to keep it on the tracks. These latter can be raised hydraulically so the car can run on ordinary roads such as the rest of us have to use. Al, you forgot one thing. You should have provided folding wings so you can leapfrog over freight trains using the same track! A very pretty hand-painted Christmas card was received from Alan R. Allen, VIII, postmarked at Iran. Lester Burbank Bridaham, X, a member of the staff of the Chicago Art Institute, has been appointed executive director of the Louisiana State Museum.

Miles Pennybacker, VI, President of Voltarc Tubes, Inc., was the principal speaker at a dinner meeting of the Norwalk, Conn., Industrial Management Club last November. Miles is President of the National Association of Independent Business, Inc., was a member of the President's Council of Economic Advisors from 1946-1952, is a director of the Fluorescent Lighting Association and the National Electric Sign Association and he serves on the National Planning Association's Committee of New England. His subject was "A Challenge to People in Small and Medium Businesses." We understand his remarks cast a great deal of light! — HOWARD F. RUSSELL, *Secretary*, Improved Risk Mutuals, 15 North Broadway, White Plains, N.Y. WENTWORTH T. HOWLAND, *Assistant Secretary*, 1771 Washington Street, Auburndale 66, Mass.

• 1924 •

This has been a good month for renewing acquaintances. Classmates have been dropping in with regularity. Told you last

month about Bill and Mrs. Rivers. A few weeks later H. Royce Greatwood popped in. The Rivers spent their honeymoon in Royce's cottage in the hills of Ceylon during the war. Mrs. Rivers, by the way, was a Lieutenant Commander in the WRENS on Mountbatten's staff. Royce, after all his years in the Orient, has now retired to a lemon grove in Santa Barbara. "The only crop I know of you pick all year 'round." He also has other retirement interests such as oil brokering and locating tankers for people who happen to need them in a hurry. Mrs. Greatwood is an architect and designed the home they have built in the middle of the grove. You'll see it in *House Beautiful* sometime soon. As president of the American Club in Tokyo, Royce was in charge of building a pretentious (half-million) new club-house. After a preliminary housewarming in mid-December he hopped a plane back intending to spend a warm Christmas in California, instead was informed that they were due in Nantucket for that occasion. Took them longer to get from New York to Nantucket than from Tokyo to Santa Barbara. At the moment Royce has a dim view of New England's climate.

Next day the Ilfelds returned from a Christmas spent in Taos, and the following day Professor Calor Mota was in town from Puerto Rico. Unfortunately your Secretary missed connections there. A few days later, however, H. Gregory Shea, the man in charge of giving away Equitable's money (and we use the term loosely — he has strings) showed up for lunch. The Georges, Parker and Knight, joined us in a lunch that could have stretched on through the cocktail hour, but had to be called on account of work. Greg and your Secretary took a tour through the new Auditorium, almost completed by that time. It's a really amazing structure from every standpoint.

Then the next day who should show up but the peripatetic O'Neil, fresh from his Grand Tour of the Continent. This was a bit unexpected since his Christmas card said "Hope to see you in June." So it's June in January. Frank has sold his foundry in Chicago, seems to have had enough vacationing for a while, and is looking around for something new that interests him.

You fellows did O.K. on your Christmas cards, and thanks loads. Do wish, though, more of you had added a bit of grist for these columns. From Tony Rosado came "*Felices Pascuas y exitos en el Proximo Ano.*" Another "*Feliz Navidad*" from the Cornishes. Nish, by the way, after running these Fiestas for years, has finally succeeded in getting out from under. However, its still in good hands, Jack Nevin's hands. March 10, 11 and 12 are the dates, and if you can possibly get there, do. Still another from our distinguished Honorary Member, Don Carlos Contreras of Mexico City, who sent his Christmas greetings "to all my fellow classmates in that fine M.I.T. Class of '24." Hank Simonds' card was woven straw from Olonago in the Philippines. Professor Sam Shulits, whose studies of the changing channel of the Rhine have been mentioned in these columns, says that "an infinitesimal case compared with a disappearing Mississippi, about which I shall

send you a publication one day." Maybe that's why Lawrence B. Feagin has been transferred downriver from St. Louis to Vicksburg. He's now Chief of the Operation Division, Mississippi River Commission. Maybe Larry can keep it from "disappearing." Cards came from two of our country squires, the Barretts of Barrington and the Dunns of Dunnyfields. That's the last time the Barretts can use that one, though. On January 1 Frank was transferred back to Boston. He's now Director of Sales, N.E. Telephone and Telegraph Company, a nice step upward, and he's house hunting at the moment. The Cardinal's card, when unfolded to impressive length, gave a lineup of all the important events of the past year. Notable by its absence, our 30th Reunion. How about that! Mean to say the Rice Miller's Meeting and something called the D.C.A.T. Meeting rate that reunion? And how about that Archery Medal and Jury Duty!

The Bates's, self-styled Native Californians (they're really renegade New Englanders), used the occasion for some more plugging of the Golden State. A very nice picture of Yosemite Falls taken by Phil, with a complete description inside. Phil is almost as much of an L.A. Chamber of Commerce as Bill MacCallum. Their card also announced that they had this year become grandparents, twice.

The month's yield of clips came up with a beauty on Ed Hanley from *Business Week* of October 16. The story about Allegheny Ludlum, "Betting on New Metals," was very good indeed, but the real feature was the cover picture showing Ed, arms folded, glowering at the photographer, with an impressive background of heavy equipment. The second clip of note was another glowery picture, this time of Lieutenant General James H. Doolittle, and the expression befitted one who "is charged with investigating operations of Central Intelligence Agency." Investigating that outfit is something to conjure with. The *Times* story said appropriately that his activities were "veiled in secrecy."

George C. Reinhardt, late Colonel, U.S. Army, didn't take seriously to retirement. He's now with the Rand Corporation in Santa Monica, Calif. A note from Mrs. Hancock brings the sad news that James R. Hancock died on December 2. Jim had been with the Army Engineers' office in Cincinnati for some time.

We're doing right well by the Alumni Fund this year. Our contributions to the Compton Memorial look good in dollars, but we still need a lot more of you as contributors. Don't forget, your gifts this year: 1) do honor to Dr. Compton; 2) get doubled by "Mr. X" — and G.E., if you happen to work for that splendid outfit; 3) bring you this magazine for another year, with its sparkling and illuminating Class Notes by — HENRY B. KANE, *Secretary*, Room 1-272, M.I.T., Cambridge 39, Mass.

• 1925 •

Early Reunion returns already indicate that classmates are planning to be in Cambridge in June for the 30th Reunion coming from all parts of the country. We have received reservations from classmates in

11 states and Washington, D.C., already, so if you have still neglected to send in your reservation, won't you help the committee by sending it off today? There will be plenty of activity from June 10 to June 13, and I am sure you will find people on-campus during this period that you have wanted to see for these many years.

The news items that have come to our attention during the past month are concerned with 1925 Alumni who attended the Institute only as graduate students, but many of you may have known them despite the short time they spent at M.I.T. Harry P. Henderson graduated from Tufts College and then took graduate work in Course III. He has recently been promoted to factory manager of the New Departure Division, General Motors Corporation at Bristol, Conn. He had been superintendent of primary operations. Clifford Lindsey Alderman, a graduate of the U.S. Naval Academy, took post graduate work at the Institute in Course X. After serving briefly as a fuels engineer for the U.S. Bureau of Mines, he became concerned with editorial and publicity work. Possibly you have read his articles and short stories which have appeared in the *Saturday Evening Post*, the *Atlantic Monthly*, *Argosy*, *Gourmet* and other magazines. He was formerly editor of *Shipping Digest* and is presently editor of *Via Port of New York*. For some years now, he has trained himself to sit down at his desk every Saturday, Sunday and holiday to work. A recent result of this is his second book, a panoramic novel of the French and Indian War, recently released by Appleton-Century-Crofts, Inc. In this new novel, *To Fame Unknown*, he has attempted to show that in most cases the unknown one is better off and that, in the long era for struggle that preceded American independence, it was the unsung settler of the land who really won that struggle. When Mr. Alderman's first novel, *The Arch of Stars*, was published a couple of years ago, the critics were quick to compare him with Kenneth Roberts. On a more solemn note, we have received information from Mrs. H. Sherman Baker that her husband passed away in October of 1954 and extend the sympathy of the Class to her. — F. LEROY FOSTER, *Secretary*, Room 5-105, M.I.T., Cambridge 39, Mass.

• 1926 •

On several occasions we have published excerpts from Whit Ashbridge's interesting letters that he writes from Venezuela. Whit's letters are never addressed to an individual. Because he makes innumerable copies for his many relatives, he always says "Dear Family." I'm going to take a leaf from Whit's book and start off "Dear Twenty-Six Family." That gets me into the right frame of mind. It also gives me the license to stray from the subject and with a pretty empty class notes folder, I'll need to stray a bit. I have a memo from Don Severance, Alumni Association Secretary, stating that "Kite" Sessions was chairman of the committee responsible for the 3rd midwest M.I.T. Regional Conference that was held Saturday, February 26, in Cleveland. In all these 30 years, I had never heard Bill Sessions called "Kite" but it is as lofty a nickname

as one might want, unless someone decided to bring it up to date and change it to "Nike." I am sure many of you have attended these regional meetings which have been held throughout the country in the past few years similar to the Alumni mid-winter meetings that are held in Cambridge, and which I believe set the pattern. It was after one of the Cambridge meetings about 10 years ago that some of us felt the need for more frequent local gatherings and organized the Boston Luncheon Club. Pink Salmon is now Chairman of this club which meets for monthly luncheons at Ye Olde Oyster House and attendance has grown to about 80 local Alumni at each meeting. The meetings are held on the third Thursday of the months October through May and should any of you happen to be in town, just give us a ring and we will see that you get a '26 escort — there are usually a half dozen of us there.

The other noon (but not timed right for the meeting) Pink ran into Dick Plummer at the Parker House. Dick was in town enroute to Pakistan where he joins a team who will be working on recommendations for improving the overall well-being of that country. Dick's wife is currently in Europe where he expects to meet her on his way to a year and a half sojourn in the middle east. Dick mentioned that one of his sons is now at Yale, the other in the Air Force. A recent postal from Bill Rivers gives us his new address and the comment "Quite a change after 27 years in one country (India) to jump to another continent!" Bill's business connection is the same, Standard Vacuum Oil Company, but his new location is Nairobi, Kenya, East Africa. When you get settled, Bill, how about a note from you bringing us a little more up to date on details?

I think we have already told you that Marron Fort has gone to Israel for awhile to teach. We received another clipping about it this month and while on the subject of our roving classmates, it came to mind. The other morning while waiting for a plane at East Boston, Jim Killian came along. Unfortunately he was catching the non-stop to Washington while mine was the non-stop to Philadelphia, so we were only able to exchange greetings. It was a sloppy morning and we took off in a snow storm but the sun was shining brightly after we got out over the storm. Jim is spending considerable time in Washington these days. He sent his best wishes to the Class via your Secretary. I don't believe I have mentioned a short but pleasant visit from Henry Rickard last summer. One morning, I happened to look up from my mail and Henry was sitting in my office. He had been ushered in so quietly I was unaware of his presence. Henry was visiting Boston hurriedly and reported that he enjoys his connection with Crown Cork and Seal Company of Baltimore where it appears that he is working on very interesting problems for top management. Another Boston visitor last summer was Nelson Wilmot from Chicago. He phoned for hotel suggestions and we recommended an inn at Pigeon Cove. As proof that he was there he sent us a delightful color print of our house taken during his visit.

A letter from Paul Jewell (the only let-

ter received this month!) tells us that he is on leave from Maryland State College and is working for a doctorate at Indiana University. A clipping advises of the publication of a new book by Manfred Rauscher entitled "Introduction to Aeronautical Dynamics." The name is impressive and the price \$12 and pages 664 really makes it sound like an important volume. Speaking of books, I went to the library the other evening to look for a book that would enable us to tell a chickadee from a sparrow and in that section of shelves, I found that the most impressive volumes were written by Dick Pough. They were a little advanced for our immediate purposes but I hope we will grow up to them. Right now our St. Bernard "Kinda" is standing before me suggesting that we take a walk so it looks as though the class notes are finished. See you in a month. — GEORGE WARREN SMITH, *Secretary*, c/o E. I. Dupont De Nemours and Company, Inc., Rubber Chemicals Division, 140 Federal Street, Room 325, Boston, Mass.

• 1927 •

At a recent meeting of the Amherst Woman's Club in Skinner Auditorium, University of Massachusetts, Harold E. Edgerton presented an illustrated lecture "Aboard the *Calypso* in the Mediterranean." Dr. Edgerton has participated in the National Geographic Society-*Calypso* expeditions to the Mediterranean during the last three years. This lecture presented the story of these expeditions and showed the discovery and exploration of a 2,200-year-old Greek ship on the bottom of the sea with the aid of superb under-water photography. This presentation of a highly scientific subject was presented in such a manner that it is of special historical and photographic interest to everyone. In addition to his teaching duties, Dr. Edgerton is engaged in further research on stroboscopic and related instruments for use in high-speed photography and their application in education and industry. Charles A. Bartlett has been named secretary-treasurer of the Maine Savings and Loan Association.

A teaching laboratory in servomechanisms will be established this fall at the Thayer School of Engineering at Dartmouth College. The new laboratory will be under the direction of Professor Charles Kingsley, Jr., visiting professor from M.I.T. where he has been an associate professor of electrical engineering and research engineer in the servomechanisms laboratory here.

The announcement of the appointment of James A. Lyles of 29 Boulder Trail, Bronxville, N.Y., as a trustee of Berkshire School, Sheffield, Mass., was made at the school's annual N.Y. alumni dinner at the Princeton Club in December. A vice-president and director of the First Boston Corporation, he has been with this investment firm and its predecessors ever since receiving his S.B. degree in engineering administration at M.I.T. in 1927. He graduated from Berkshire in 1923.

Richard H. Tingey of 90 Squanto Road, Quincy, Mass., has been appointed technical manager of the Bethlehem Steel Corporation's shipbuilding division. He has been with Bethlehem since 1927.

Our annual Christmas card (The Glantzberg Gazette) from Fritz Glantzberg is headed "The Family Migrates to North Africa." Fritz has taken command of the 17th Air Force and has been busy getting acquainted with his area of responsibility, which is roughly twice the size of the United States, extending 5,500 miles east of Rabat, across North Africa and the Middle East to India and Ceylon. Fritz has been making slow progress with French, but by now has become perfectly fluent, so much so that he was asked to make a radio address on Bastille Day in French. — JOSEPH S. HARRIS, *Secretary*, Shell Oil Company, 50 West 50 Street, New York 20, N.Y.

• 1928 •

Press releases and clippings show a number of 1928 men in the professional news recently. Merrell R. Fenske presented a paper on "Extraction of Petroleum Fractions by Ammonia Solvents" before 3,000 chemical engineers at the annual meeting of the American Institute of Chemical Engineers at the Hotel Statler, New York, on December 14, 1954. Dr. Fenske is a research professor of chemistry and chemical engineering at Pennsylvania State University. He received his Doctor of Science degree from M.I.T.

The American Chemical Society News Service announced on December 22, "Dr. Richard D. Hoak, senior fellow of the Mellon Institute for Industrial Research, Pittsburgh, Pa., has been elected chairman of the American Chemical Society's Division of Water, Sewage, and Sanitation Chemistry for 1955. . . . Dr. Hoak is a registered professional engineer and an authority on methods of preventing stream pollution. He serves on the national water policy panel of the Engineers Joint Council and is a member of the Pennsylvania State Chamber of Commerce pollution abatement committee. He represents the iron and steel industry on the National Technical Task Committee on Industrial Wastes. . . ."

Harry N. Hardsog, who counts research as one of his hobbies, was given a long column in the Worcester, Mass., *Telegram* of November 30, 1954. Reading from this article Harry is now retired from the Army (Colonel, Ordnance) and living at 5 Woodland Road, Northboro, Mass. He is interested in furthering applications of nuclear energy and is assisting Fairchild Engine and Airplane Corporation.

A note in the financial pages of Boston newspapers announced that Walter E. Hildick has been named treasurer of Curtis and Marble Machine Company. He was formerly vice-president of Textron, Inc., and more recently, vice-president of the United States Finishing Company.

Ralph Joep received a breezy letter from Charlie Richheimer written at sea on the stationery of the S.S. *Silverstar* on a Caribbean cruise. Charlie, his wife and daughter, beginning their cruise from Miami, visited San Juan, Puerto Rico; Charlotte Amalie (American Virgin Islands); St. John on Antigua (British Virgin Islands); Guadeloupe and Martinique (French); Barbados (English); Caracas (Venezuela); Curaçao, Jamaica, and back to Miami. At Caracas, the Richheimers visited with Mariano Contreras and

Gabriel Disario and met the charming families of these two staunch South American twenty-eighters. Charlie reports that both men are in excellent health, doing very well, and are enthusiastic boosters of Venezuela. — GEORGE I. CHATFIELD, *Secretary*, 49 Eton Road, Larchmont, N.Y. WALTER J. SMITH, *Assistant Secretary*, 15 Acorn Park, Cambridge, Mass.

• 1930 •

Shortly before Christmas Jack Bennett was at the Institute to attend a meeting of the Course II Visiting Committee. Joe Harrington, Allen Latham, George Wadsworth, and your Secretary had an impromptu meeting at the Faculty Club with Jack and Hijo Marean to discuss reunion plans, concerning which you will have received several mailings by the time you read these notes. Reunion literature will continue to be sent to all classmates signifying an interest in attending, so we are counting on you to keep us posted!

Sidney Kaye of Brookline presided at cornerstone laying exercises recently for a new \$650,000 wing on the Jewish Memorial Hospital. Bob Canning has been named manager and manufacturing engineer for the J. C. Morrison plant in Edmore, Mich. We understand that Bob is an excellent golfer and hope that he will bring his clubs with him when he comes "back to Tech" in June. From Dallas comes word that Fred Dickerman has been promoted to the newly created position of director of engineering by Chance Vought Aircraft. Ronald Youngson has been elected vice-president and production manager at Paragon Products Company in Oshkosh, Wis. The Greenpoint Industrial Management Club of Brooklyn recently had Lester Steffens as a speaker on "The Mathematical Approach to Making Business Decisions." Les is a chemical engineer with Socony-Vacuum. Two of our classmates are new members of the M.I.T. Club of Honolulu: Horace Myers, formerly with Westinghouse in Charlotte, N.C., and Rear-Admiral Schulyer Pyne, the commanding officer at Pearl Harbor Naval Shipyard. They ought to get together on this reunion business. — PARKER H. STARRATT, *Secretary*, 1 Bradley Park Drive, Hingham, Mass. *Assistant Secretaries*: ROBERT M. NELSON, 48 E. Lawrence Road, Phoenix, Ariz.; ROBERT A. POISSON, 150 E. 73d Street, New York 21, N.Y.

• 1932 •

Have a number of interesting things this month. First off, our long time prexy, Don Gilman, has left Sears Roebuck Company after these many years to join the Electric Regulator Corporation of Norwalk, Conn., living in New Canaan. Don is happy to be back in New England. I am sure our class activities will benefit greatly too. Don's note reports that John Turner has become one of the leading industrial and commercial architects in Mississippi. He has just completed building the large new plant for Century Metalcraft Company, who make the National Pressure Cookers. John is also M.I.T. Honorary Secretary in Jackson.

Tom Regan has also moved, to 2106 Greenwood Avenue, Kenilworth Gardens,

Wilmette, Ill. Tom has been made vice-president and sales manager of General Box Company. Prior to that he had been vice-president and manager of their Winchendon, Mass., plant. While he has moved to the West, his new assignments should really make him, if anything, more available.

Frank Speir, Lieutenant Colonel in the Regular Army, is here in the Detroit territory at the Detroit Arsenal in Center Line, Michigan. He reports nothing special, except the usual complement of wives, children, ulcers, and decorations with which all middle-aged Army officers are equipped.

Winston Braxton has returned to the international circuit after several years in the home office of the Carrier Corporation in Syracuse. He has been made Assistant General Manager of their International Division. He reports many short trips all over the world, recently Europe and Central America. Before long he will be off for a Pacific grand tour. Winston has been doing this sort of thing for 20 of the years since he left college. He has been appointed Ambassador-at-Large for the Class, with the specific assignment of finding some interesting news items for the Secretary. A note from Chippy Chase tells of the problem of promoting additions to the local public library in Plainfield, N.J., with an unenthusiastic Common Council. Chippy is also teaching 6th grade Sunday School, but reports this as a current unsolved problem. In his spare time he continues to further the commercial ambitions of Bakelite.

Bob Ingram's firm, C. Robert Ingram, Inc., of Oklahoma City, Okla., has been appointed distributor of Du Mont television receivers in Oklahoma by the Television Receiver Division of Allen B. Du Mont Laboratories, Inc. The Ingram Company, of which Bob is President, maintains offices at 1740 West Main Street, Oklahoma City, in the newly constructed Ingram Building, which provides 15,000 square feet of office and show-room space. During World War II, Bob served as a radar and electronics officer in the Army Signal Corps in the South Pacific theatre.

Ken Klopp reports from E. 508 Rockwood Boulevard, Spokane, Wash., where he is President of the White Pines Sash Company. Not too much news, but a little work for M.I.T. on the Education Council. He has seen Ted Heim and Dub Rash in St. Louis, where he has occasional business.

Cecil Boling was recently made treasurer of the American Society of Refrigerating Engineers at the Society's 50th annual meeting in Philadelphia. He continues as president of the Bush Manufacturing Company, West Hartford, Conn., but with the building of a new plant on the West Coast he is enjoying wider scope. And that's all the material we have for the notes this month. Any letters or clippings from members of the Class would be greatly appreciated. The Secretaries really need your help.

— ROBERT B. SEMPLE, *Secretary*, Box 111, Wyandotte, Mich. *Assistant Secretaries*: WILLIAM H. BARKER, 45 Meredith Drive, Cranston, R.I. ROLF ELIASSEN, Room 1-138, M.I.T., Cambridge 39, Mass.

• 1933 •

Thomas K. Fitzpatrick reports from the University of Virginia where he is Dean of the School of Architecture on the activities of several architects in the Class: Charles Martin who is chief designer for Brooks and Borg in Des Moines, Gordon Bunshaft who is chief designer for Skidmore, Owings and Merrill, Joe Carbonell who practices architecture in Wilmington and Monroe Labouisse in New Orleans. Tom, himself, has been active in architecture problems of the Atomic Energy Commission and the A.I.A. Cal Mohr succeeds in seeing many classmates in his travels around the country: Bob Smith who is Production Manager of the Pfau-ler Company in Rochester and Walter Swanton who heads Pfau-ler's processing division. Cal has recently retired as President of the Wabash Valley Instrument Society. We have learned second hand that Rolland Glenn is now General Superintendent of South Charleston, W. Va., plant of Carbide and Carbon Chemicals. John Hanlon, who heads the Public Health Division of the Foreign Operations Administration, writes of his interesting travels in South America and in this country. For several years, John taught at the University of Michigan and is the author of two widely known texts on Public Health. John is married and has two children, Jon, 11 and Donald, 6. Mac Millard reports that he scarcely had time to get settled in his new post with American Steel and Wire in Cleveland when he was called to the home office of the parent company, U. S. Steel in Pittsburgh. Still in sales work, Mac's current assignment includes facilities planning also.

Charlie Bell still continues in his important post with Universal Winding in Providence and reports that between hurricanes he manages to work on a new house and a variety of other business enterprises. He comments that two daughters, ages 16 and 14, and a son 9 "keep us from getting bored in our old age." A houseful of teenagers generates plenty of excitement but perhaps hastens old age, Charlie. News has just come that John Howell is now chief engineer of Walker-Turner with offices in Plainfield, New Jersey. —GEORGE HENNING, *Secretary*, 330 Belmont Avenue, Brooklyn 7, N.Y. R. M. KIMBALL, *Assistant Secretary*, M.I.T., Cambridge, Mass.

• 1934 •

When our ingenious Secretary suggested to me last week that the class notes of this issue of *The Review* should be devoted to a letter from me to all of '34, I reacted with a bit of a shock. Basically the idea is fine and I readily tip my hat to Walt, but it has one serious — and obvious — drawback! However, I can hardly advocate cold water for the rest of you without taking the plunge myself. So here goes.

First, let me send greetings from this center of our own particular educational universe. The advantages that go with being on the fringe of the Tech family have by now come to be such a normal part of life that I tend to forget that most of the rest of you are not similarly privileged. I wish that all of you could be, at least

for a time. Lacking that, perhaps I can paint a picture of it for you.

Back in 1937 or 1938 I was asked to represent the Class on the Alumni Council and have done so ever since. Officially, the affairs of the Alumni Association are run by this august body, now numbering about 120 members. The high spots for most, however, are not the committee work but the monthly dinner meetings at which Institute staff members who are engaged in especially interesting or timely pursuits discourse on them, always interestingly and often vividly. Many of the men whom we knew as wielding the birch rod of education (or administration) 20 years ago attend these meetings as representatives of M.I.T. local groups or of their classes, and one always enjoys visiting with them under these informal circumstances. All in all, it makes for an experience I wish all of you could share — and I have started the practice of inviting a different classmate to each meeting. Applications are invited!

Then, there are the many professional technical society meetings in Boston to which Tech often plays host. Of course, sitting in Room 10-250 in the evening to hear the latest theories about power plant design is not exactly the same as a sophomore physics lecture back in 1931, but the familiar surroundings do produce an air of pleasantness which probably would not exist elsewhere. Several of our "Grade A" classmates chose to have a try at teaching at Tech and offhand I can recall, in no particular order, Johnny Hrones, Walt McKay, Walt Wrigley, Red Martin, Joe Kay, Joe Bicknell, John Burwell. Seeing them from time to time also keeps me within the circle of Institute life, so to speak. Then, there are special occasions which can't be catalogued, as the time I happened by chance to encounter Dr. Compton on the six o'clock train from New York. We had both missed the "Merchants" and had had no time to reserve seats on the later train. It turned out that the conductor gave us adjacent seats in the smoking section of one of the cars. Much to my surprise, Dr. Compton recognized and spoke to me and we talked — or rather he talked and I listened and asked questions — nearly all the way to Boston. He had been at Princeton on business and had taken the opportunity to spend a few minutes with an old professor of his, Dr. Albert Einstein. This was surely the high spot of his day and he mentioned something that I had not previously known, namely, that his doctorate thesis gave Einstein the first experimental proof of one of his theories of relativity. From the number of things that Dr. Compton mentioned that evening I am still wondering how he managed to crowd it all into one lifetime.

Well, I didn't mean to get off so deeply on this subject. All I wanted was to reflect on some of the things we are prone to take for granted here and to say I wish it were possible to allow more of you a first-hand contact with them. And if any of you detect the fine trace of a suggestion that you should already be thinking of '59 and your return to Cambridge, then I won't deny your inferences. The Class is promoting a special project at the moment but it is not yet ready for viewing

in the full light of day (as I write this in January). If things go well, you should be hearing about it in the not too distant future. My best wishes to you all. I should be pleased to hear from any of you when you are in Boston, and I extend this invitation especially to those who come from a distance. The guide service is guaranteed and includes personal acquaintance with one of New England's tastiest lobsters. Sincerely, Hank Backenstoss, President, Class of '34. P.S. Now how about a letter from you?" — WALTER MCKAY, *Secretary*, Room 33-211, M.I.T., Cambridge 38, Mass.

• 1936 •

While it has been a long time since any news of the members of the Class of 1936 has appeared in *The Technology Review* Notes there seems at last to be some news worth recording. On November 24, Jack Austin, Class President, called a meeting of some of the Class members in order to lay plans for the 20th and 25th Class Reunions, together with emphasis on the 25th year gift to the Institute. In addition to Jack, Fletch Thornton, Tony Hittl, and Bob Worden attended the meeting to become a nucleus of a Class of '36 Task Force in order to co-ordinate some of the activities of the Class. As a result of the meeting, Hank Lippitt (in absentia) was designated the job as Secretary and Tony Hittl was appointed to be chairman of the 20th Reunion.

In order to get the plans for the 20th Reunion underway a "Group of 40" was planned to be made up. A number of names were suggested, including such people as Ford Boulware, Bill Garth, Bob Gillette, Alwyn Gray, Mal Holcombe, Larry Kanter, Brent Lowe, Walter Sharp, and Py Williams. There were, of course, many others — these are simply a few names that came up at the meeting. Consideration was given to appointing a number of regional vice-chairmen, including Larry Kanter in New York City, Brent Lowe in La Jolla, for Southern California, Al Horton, San Francisco, for Northern California, as well as others who might volunteer to help. These regional committeemen could then help with the Working Committee in New York City in planning the Reunion and Class activities.

As a parting reminder it was suggested that Bob Gillette would appreciate mentioning that the 1955 Alumni Fund, which is to be entirely devoted to a memorial to Dr. Compton, has been offered to be matched dollar for dollar by an anonymous donor so that every contribution to this year's Alumni Fund will do double duty. In addition to these notes as to the overall activities of the Class, some news has been received recently covering the activities of individual class members. Dr. Pratt, one of the class members who went on to get a higher education after leaving Tech and received his M.D. from Harvard Medical School in 1940, has just been appointed professor and chairman of pediatrics at Southwestern Medical School of the University of Texas. After graduating from Harvard Medical, Ed completed his internship and residency at Children's Hospital in Boston and served as assistant and instructor in pediatrics at Harvard Medical School before going to New York

and becoming an associate professor in New York University's College of Medicine.

News comes from Bill Hewlett of Palo Alto, Calif., co-founder of the Hewlett Packard Company, makers of electronics equipment, and now National President of the Institute of Radio Engineers. This has been just another step in Bill's career upward. After receiving his A.B. degree from Stanford University in 1934 and his Masters Degree with our Class, he received the degree of Electrical Engineer from Stanford in 1939 and has continued his many activities in the electronics field since.

One of the most interesting news items concerns the unique career which Barney Rabin of Marblehead has carved out for himself in the educational field. His Barney Rabin and Company, 6 Anderson Street, Marblehead, is probably the leading firm throughout the United States which prepares the precious "sheepskins" for which college and high school students throughout the United States expend countless gallons of midnight oil. Barney, who maintains one of the few establishments of its kind in the country, is commissioned by leading educational supply houses of the nation to handle their orders for diplomas and degree certificates and his Anderson Street plant in Marblehead turns out thousands every year. Barney handles the delicate engrossing process with a self developed mechanical apparatus which puts on the names of the men and women who are to receive the diplomas. His Marblehead plant engrossing the names of the school, the names of the graduate, and duplicating signatures of educators to perfection, is filled with equipment, all of which he developed personally since his graduation from M.I.T. with our Class. It was Barney's lack of satisfaction with his pen prowess by hand which led him to develop the mechanical process which could duplicate and engross and yet do the job much more speedily. He is now working on lapel cards for use at the conventions and for other purposes but at the latest writing has not yet developed a method for duplicating the signature of Ivy Baker Priest and George W. Humphrey, appearing on U. S. currency. (Perhaps like Charlie Faber of dubious fame at the time our Class was at Tech, he will undertake this next.)

Gunnard Carlson, who has just spent two years in the Mediterranean as district engineer with the Army's East Atlantic District, has been reassigned to Fort Leonard Wood, Mo. Before going to Tech, Gunnard graduated from West Point in 1931 and had some flying service before going through the throes of getting an education at M.I.T. in Cambridge. During the War he was assigned to the New York Port of Embarkation and was in Japan from 1945 to 1947, afterwards being division engineer in Boston for the New England Division in charge of Harbor Construction and Control.

As new Secretary, Hank Lippitt reports that he is still holding the fort as an attorney with the law firm of Dougherty and White in New York City. After leaving Tech, Hank spent two years with Lever Brothers in Cambridge before find-

ing out that most of the decisions were being made by lawyers and that he had best go to law school (Harvard) from which he graduated in 1942. After working with the War Production Board in Washington and then being stationed in the Bureau of Ordnance in Washington during most of the war as a procurement officer, Hank went to New York in 1947 to do some work with the Atomic Energy Commission's New York Office before switching over to the law business and specializing in public utility regulatory matters principally before the Federal Power Commission.

News comes that Bob Gillette has during the past year been made President of the Rock of Ages Corporation. ("Don't procrastinate, buy your monument now") in Barre, Vermont. After graduating from Tech with our Class, Bob was Chief Planning Engineer with Jones and Lamson Machine Company in Springfield, Vermont, through 1944 and then became production manager with Submarine Signal Company, Fall River, through 1946 and directed research work with United Shoe Machinery Corporation in Boston until 1949, before taking an executive position with Rock of Ages Corporation in 1952. Bob is in charge of securing funds for the Class contribution to the Alumni Fund and has agreed to graciously accept any contributions that may be sent.

Mal Holcombe, who went on to graduate from George Washington University as a lawyer in 1941, has volunteered to act as Reunion Finance Chairman. After leaving M.I.T. in 1936 Mal went on to Harvard in 1937 and then to George Washington University, being admitted to the Bar in the District of Columbia in 1942. Since then he has been practicing in the patent law field with Curtis Morris and Safford in New York, until the middle of last year. At that time one of his chief clients, Aircraft Marine Products, Inc., of Harrisburg, Pa., asked him to become an executive with them. Although he still retains his connection with his old firm in New York, he devotes his time to his work as an executive in Harrisburg. — HENRY F. LIPPITT, 2ND, Secretary, 30 Rockefeller Plaza, New York 20, N.Y.

• 1938 •

I am happy to report that this month we have some news. Incidentally, you might like to know that the only critic who reports to me frequently about these notes claims to enjoy them. The problem is that he isn't in the Class of '38. If you are and also enjoy reading these items, then please submit your own contribution.

Do you have a copy of January issue of *Fortune* handy? If you have, but haven't seen the box on page 162, you will be interested to read the story of Jack Cook's Warren Wire Company. To summarize a few statistics, we note that his seven-year-old business expects gross sales of \$5 million in 1955. Last year at home, Mrs. Cook managed their five children and grossed \$15,000 on their 200-acre farm. Lew Hull writes: "As of November 1, I left the F. J. Stokes Machine Company. During the last five or six years of my 16-year stay with the Company, I was manager of the Vacuum Equipment Divi-

sion. As you will see from the letterhead, I have established Hull Corporation. We are offering pilot plant equipment for the process industries, certain industrial vacuum equipment, and also consulting services. So much for business activities. Our third child, Stephen Parker Hull, arrived September 17, thus making two boys and one girl. Miggie and I thoroughly enjoyed the 15th Reunion last year and are looking forward to another in a few years."

I am grateful to Mrs. Clough for enclosing the following note with their Christmas Greetings: "The major news item for the past year was Tenny's change in employment. A month of rest and relaxation was all too short and then he became affiliated with the Permatatch Diamond Tool Company in Milford, N.H., a neighboring town. This is a brand-new concern manufacturing diamond tools and eventually other products. Because it has a basically different process of attaching the diamond, the prospects look very bright. Alan is now seven and in second grade. Dusty is three and tries to keep up to his brother in everything. We try to keep up with them!"

We were also happy to receive good news from Earle MacLeod: "We also moved and had an 'arrival' this year. Bought a new three-bedroom ranch-style home on the outskirts of Syracuse last May. On September 4 our first child was born — a daughter whom we named Diana." In a like manner we learn that Charlie and Lois King are happy in a new home of their own. A note announces that Frank Wardwell has been elected President of the M.I.T. Club of Kentucky. Another clipping notes that Harold Scheeline, Assistant Director, Standard Oil Development Company, is the author of a paper "Absorption Phase Equilibrium Correlations" presented before the December meeting of the A.I.Ch.E.

Ralph Slutz has been appointed chief of the Radio Propaganda Physics Division of the Boulder, Colo., Laboratories of the National Bureau of Standards. Charles Harrington, who was formerly an assistant secretary of Du Pont and assistant director of the Secretary's Department, has been appointed assistant manager of the company's new organization formed to handle the sales of isocyanates. — DAVID E. ACKER, Secretary, Arthur D. Little, Inc., 30 Memorial Drive, Cambridge, Mass.

• 1940 •

The column has been on a diet for the last few months which we hope the forthcoming reunion and plans therefor will alleviate. This month, however, news is relatively scant. Our Class has been honored by Joe Libsch who has received the \$2,000 Award of the American Society of Metals for outstanding contributions to the teaching of metallurgy. Joe is professor of metallurgy at Lehigh University. Bob Harper has been elected vice-president and director of the Greenfield Tap and Die Corporation of Greenfield, Mass. Bill Mounce, who is with International Nickel Company, has joined the development and research division's staff in New York City as a member of the Construction Alloy Steel Section. From Milt

Green comes word that he probably will not be able to attend the reunion, but is looking forward to seeing classmates in the Boston vicinity at reunion time.

In a pleasant little note, Dick Powers informed your Secretary that he hopes to attend the reunion. At present, Dick is with Sylvania Electrical and regularly attends meetings of the M.I.T. Long Island section, although he has been able to find very few members of 1940 in that area. Although Dick originally comes from the dry Midwestern section of the country he, apparently, has grown to love a somewhat seafaring existence, as he is now located on Long Island and previously was in Marblehead, Mass., for a number of years. By the time this column reaches you, it will only be three months to the reunion and you will in all probability have received additional information on the reunion from Bob Bittenbender and his committee. This will be the first time that we have had a reunion when the United States was not at war in the history of the Class and the reunion should be our most successful one to date.

Just another reminder to contribute to the Alumni Fund. All contributions this year will go for a memorial to Karl Taylor Compton, the beloved former president of the Institute. Remember that each dollar contributed works double. — ALVIN GUTTAG, *Secretary*, Cushman, Darby and Cushman, American Security Building, Washington 5, D.C. MARSHALL D. McCUEN, *Assistant Secretary*, Oldsmobile Division, General Motors Corporation, Lansing 21, Mich.

• 1941 •

Several members of the Class have brought us up to date by means of their Christmas cards: Esther and Stan Backer are moving into their own house soon (5 Irving Road, Waban), and are expecting their first offspring in March. Dot and Bill Fox are still in Baltimore, Bill being in Bethlehem's Sparrows Point Shipyard. He reports that Tony Fiorentini is in their Fore River yard here in Quincy. Helen and Carl Aronsen have bought a house in Fanwood, N.J., and Carl is in his uncle's marine engineering firm in New York. Pat and Bob Montana are now in Milwaukee, where Bob is with Cornell Paperboard Products Company.

John Biggs will be one of the speakers on the Boston Society of Civil Engineers schedule of structural lectures, his subject being "Structural Analysis," and the date, March 15. Norman Michels, a graduate student in business administration affiliated with our Class, has been appointed vice-president in charge of engineering of the Tennessee Coal and Iron Division of U. S. Steel. He will move to Birmingham, Ala., from Pittsburgh, where he has been chief engineer of project development for U. S. Steel. — Ivor W. COLLINS, *Secretary*, 28 Sherman Road, Wakefield, Mass.

• 1942 •

At the moment there are no letters to quote, no newspaper clippings, and no more tales of travel in exotic lands. So we've come up with a bit of statistics gleaned from the cards for the new Alumni Register. Some 285 of us, about

1/3 of the Class, have sent their most recent address and other data. The largest representation (by state) is, as expected, from here in Massachusetts; and about one-half come from just four states, Massachusetts, New York, California, and Connecticut. We are located in foreign lands in the persons of: Robert Ingram in Oahu, Hawaii; John B. Myrick in Prince Edward Island, Canada; Aniceto Santos in Rio de Janeiro, Brazil; Hernando Mejia Salazar in Bogota, Colombia; Rufino Blancofombona in Caracas, Venezuela; Capt. (USN) Hayden Leon in Naples, Italy; Truls Graff in Sari Baerum, Norway; Jack Williams in Madrid, Spain; John Muller in Dhahran, Saudi Arabia; and Dr. Yen Shen in Taipei, Taiwan, China.

While skimming through the forms we also noted that: Dr. Joseph Franklin, specialist in Internal Medicine, has opened his own office on Commonwealth Avenue in Boston; and Arnold Shapiro is a professor in the Mathematics Department at Cornell University. Promotions among the military are: Major Richard Bloomingdale, Major James Sadler, Lieutenant Colonel George Siebels, Lieutenant Colonel Arthur Swanson, Lieutenant Commander Quentin Whitmore, Commander John Jorgensen, Captain (U.S.N.) David Lambert, and Captain (U.S.N.) Frank Pinney.

I am sure that we have missed not only a lot of class members from far-off places but also the achievements, offspring, and other interesting news of '42 folks closer to Cambridge. Both postcards and full-blown letters would be much appreciated, noted, recorded, and reported. — LOU ROSENBLUM, *Secretary*, Photon, Inc., 58 Charles Street, Cambridge 41, Mass.

• 1945 •

You have all received detailed reunion plans with an added personal touch from your local area chairman; please answer his pleas by acknowledging receipt of your reunion brochure. Complete and return your reunion committee questionnaire; your many classmates are anxious to learn of your where and why abouts these past few years. Prexy Chick Street recently appointed a Nominating Committee consisting of Jake Freiburger now back in Syracuse after many years in Texas, General Food's Max Ruehrmund, and California's Vince Butler. The committee will meet (by mail) this spring to submit a slate of officers for nomination at this, our 10th Reunion.

George K. McKewen, Chicago reunion area chairman, resigned from the Locke Department of General Electric early in January to become associated with Tracerlab in Boston. We understand George will be Industrial Products Manager and we wish George every success in his new position. Jack Sherman, VI, has volunteered to fill George's vacated post and we welcome his able assistance. In fact, your committee and its various area chairmen will welcome assistance from anyone who has a few spare moments to make a couple of phone calls or to scribble a few lines to some long lost classmate living in his immediate area. Those of you so inclined please drop me or your local area chairman a line.

At a cocktail party yesterday we were delighted to note the new stone on Jane (Jeb) Black's ring finger announcing her engagement to Al Werner once of White Plains but now of Waltham, Mass. Al recently joined Raytheon as a member of the New Product Planning Staff which, as we understand, handles the market analysis of Raytheon's many new electronic items. Jeb, a native of Saco, Maine, has been holding down many executive positions in Boston's retailing trade. An early spring wedding is anticipated. Ann and Bob Maglathlin recently announced the birth of a second son, Howard Andrew. George W. Bailey, M.S. (Aero) is now a member of the technical staff of the Guided Missile Division, Hughes Research and Development, Culver City, Calif. In November Jim Felter's mother graciously forwarded Jim's class dues and indicated Jim was in Saudi Arabia with Aramco. In mid-October Tom Doggett, XIII, of Watertown and Pauline Hill of Belmont were united in Payson Park Church. The bride was graduated from Simmons College and also studied at its School of Library Science. The last we heard of Tom was his Naval duty in Japan; we presume he is back working in Bethlehem's Fore River Shipyard. John Boursy of Marlboro, Mass., was recently named Executive Secretary of the Greater Northampton Chamber of Commerce.

A.S.M.E. board of honors recently named Emmett E. Day, professor of mechanical engineering at University of Washington, as 1954 winner of the Phi Tau Sigma Gold Award. The award is annually presented to a mechanical engineer for outstanding achievement within ten years of graduation. Bill Martin, Jr., the old D.U., was recently named to the Natick, Massachusetts, school board. Bill is a town meeting member and has been active in the P.T.A. and other civic affairs. Sam Duff and Katherine Zapf of Buffalo became engaged last November. A November issue of the *Baltimore American* contained a feature article on Bob Meyerhoff, one of Baltimore's local builders. We are sorry to note the deaths of William E. Hardy sometime in 1954 and John D. Toeller in November, 1951. My editor just read these notes and was shocked to see that I had neglected to announce the birth of our first, Curtis Hoxsie, December 11. Mother and baby are fine, father questionable. However, we have our baby sitter all lined up for June 10-12. Have you? — CLINTON H. SPRINGER, *Secretary*, Fireman's Mutual Insurance Company, Room 2140, Graybar Building, 540 Lexington Avenue, New York 17, N.Y.

• 1949 •

As promised, though a month or so late, this column includes partial coverage of news items arising out of last year's reunion. Some of these items may have been reported by Chuck Holzwarth in previous months but all are included here in the interest of bringing everyone up to date.

Jack L. Baker is now living in Newtonville, Mass., and doing work on servomechanisms for Raytheon. Jack's family now includes his wife Mary Ann, Pamela Susan, two, and David Elliott, one. Jack also reports that '49er Orlien N. Becker is

currently working for Boeing Airplane Company in Seattle as a project engineer in the Physical Research Unit. Olie is married and has a son Randall, 2. Jack goes on to report that Olie has been awarded a patent on an electromechanical device and has submitted a patent application on a second device. The Boston Sunday Globe for July 25, 1954, reports the marriage of Al Block to Audrey Nelda Bernstein. Al now has his master's degree from Tech.

Pete Cambourelis reported at the reunion that he is now living in Midland, Pa., and working as a sales engineer for Rem-Cru Titanium, Inc. Bruce Campbell is working hard these days to keep the rest of us alive and happy. Bruce is now working as Director of Highway Safety for the Massachusetts Safety Council, as Traffic Consultant to the Metropolitan District Commission in Boston, and doing similar work for several private companies. Bruce reports that he picked up his M.S. in Civil Engineering at Tech in '53 and is now living in Marblehead, Mass.

Jim Christopher is working as a systems analyst for I.B.M. in Endicott, N.Y. Jim and Dorothy Parsons, Sargent 1952, were married July 26, 1952, and they now have a son Eric. Paper Industry for August 1954 reports that Groff Collett has joined the staff of Consolidated Water Power and Paper Company in Wisconsin Rapids, Wis., where he has been assigned special projects in connection with long range planning. Groff holds an M.S. from Tech and prior to his new work was business manager of the Sulphite Pulp Manufacturers' Research League. Alan Collins reported at the reunion that he is continuing his career as a pilot for the U.S. Navy. He is currently living in Pleasantville, N.J.

The Attleboro, Mass., Republican for October 14, 1954, reports that Bert Collins is working as a consultant for the Unemployment Compensation Department of the Associated Industries of Massachusetts. After graduation, Bert spent a year at the University of Wales. His work included study of British industrial relations and naturalization. Russ Cox is working in the Boston area for Cabot, Cabot, and Forbes, engineers. After leaving Tech, Russ went on to get his M.B.A. at Harvard Business School.

Frank Darcy reported at the reunion that he is continuing his work as a sales engineer for National Radiator Company. Frank is currently living in Medford, Mass. In response to reunion mailings, Frank Dinneen wrote from Fanwood, N.J., that he has been working some five years now for Merck and Company in Rahway, N.J. Frank's work has been in both production and industrial engineering work. He is now married and has two sons, Kevin four and Christopher two and one-half. The Dinneens are living in their own country home which Frank designed himself. Fletcher Eaton is currently working with Anderson-Nichols, consulting engineers. Among the projects Fletcher is working on is an advanced-design typewriter known as the Synchroprinter capable of typing 15 lines of text a second.

Dave Gaillard is currently working as a Procedures Analyst for General Electric

in Bridgeport, Conn. After graduating from Tech, Dave went on to get his M.B.A. at Harvard Business School. The Gaillard family now includes two sons, David four and one-half and Peter almost three. Dave writes that he has "bought a home in Stratford, a suburb of Bridgeport convenient to Milford, Conn., where I race my Star class sailboat in the summer." Dave was also able to bring us up to date on '49er Jack Stevens. Jack is now working for Bethlehem Steel in Bethlehem, Pa., and has three children.

Second Lieutenant Bob Gillmeister made the reunion more or less en route to his new post in Rolla, N.D. Bob is working as a Contracting Officer's Representative in the Ordnance Corps, U.S. Army. Writing from Philadelphia last April, John Goppelt expressed his regrets at missing the reunion and added that he was a junior in the University of Pennsylvania Medical School. Continuing in approximately alphabetical order, yours truly, Summers Hagerman, is currently working with a young and we think promising organization, Technical Marketing Associates, Inc., in Concord, Mass. T. M. A.'s work to date has been in assisting our clients in the preparation of technical sales literature, handling of technical publicity, and public relations work for concerns manufacturing technical products. We are also doing market survey work. My wife Jeannette and I were married Feb. 10, 1951, in Dayton, Ohio, and we have one son, Oliver Summers IV, now almost two. My predecessor as Secretary, Chuck Holzwarth, writes from San Jose, Calif., that he has joined Owens-Corning Fiberglass in August, 1954, and is currently responsible for their market research in the northwestern states. Chuck adds that his family now includes two children, Cam two and one-half and Kip six months old.

As The Review deadline has once again caught up with me, we will continue coverage of post-reunion items next month along with other news which has come along. Before signing off, I would like to call to your attention the special meaning of contributing to the Alumni Fund this year. 1949 was one of the classes privileged to be at Tech during the years Dr. Compton was associated with the Institute. I know we will all want to make a special point of contributing this year. As you probably know, the Alumni Fund will be entirely devoted to the fund for building the Compton Laboratories for Nuclear Science and Electronics.—O. SUMMERS HAGERMAN, Secretary, Technical Marketing Associates, Concord, Mass.

• 1950 •

This month's door prize (one month's supply of diaper service) goes to Mr. and Mrs. Frank Parisi. On October 15, 1954, they became parents for the fourth and fifth time when Donald and Debra, 3 lbs. 12 oz. and 3 lbs. 2 oz., respectively, arrived on the scene. Sitting at home awaiting the arrival of the twins from the hospital were Frankie, eight, Johnny, six, and Tommy, three. Lee and Barbara Powers can also utilize a few diapers. Their fifth child arrived on November 1, and reading from oldest to youngest they are Ellen, Peter, Stephen, Kenneth and

Charlotte. Ralph Gretter now can put a big number seven on his income tax form in the total number of deductions column. In addition to his Mrs., there are Worth, six and one-half, Steven, five, the twins William and Richard, four, and the now newly arrived Jo Anne, who put in her appearance on December 17, 1954. By the way for those of you who don't know it, Ralph received his assistant professorship and is now turning out mean quizzes for the student body at Tech.

Peggy and John O'Neil now have three children, Kevin, Kathleen and Brian. Pat and Dick Henderson have two little girls, Kathleen three, and young Eileen, born June 17, 1954. And looking over the next card I see where the name Kathleen is a very popular one. Jack and Liz Cord named their daughter Kathleen and young Mike about three years is really thrilled with his new "doll that cries." Bill Enders and his Mrs. are real proud of their first child, a son, who was born on October 24, 1954, and they have named him Gregory William. Bill received his discharge from the Air Force during the summer and is now employed by Aeronca Manufacturing Company in Middletown, Ohio, as head of the Missiles and Electronics Section. Mr. and Mrs. Robert Davison set aside June 28, 1954, as the happy day Anne Sullivan Davison arrived on this earth and started letting people know that she had a healthy set of lungs.

While we are on the subject of children and such, have you noticed the birth announcements that are being sent out upon the arrival of new citizens? I'd like to sneak in the wording of the birth announcement sent out by Charlie and Cindy Lusher last May. "The Lusher Production Company, West Main Street, Cheshire, Conn., announces the 1954 Spring Baby Boy. Charles A. Lusher: Designer and Chief Engineer, Cynthia Lusher: Production Manager, Dr. Edward Oxnard: Technical Assistant, Model released May 28, 1954. Styled Charles Raymond, weight six pounds, eight ounces. Specifications: Two lung power, economical feed, knee action, streamlined body, free squealing, continuous exhaust, frequent intake, changeable seat covers. The management assures the public that this is the latest model and that no new models will be brought out again this year." Fred and Sylvia English are out in California fighting off the smog. They have a little girl Wendy and are expecting another addition to the family in May. Fred is doing quite well with Lockheed and after four and one-half years out there, is getting to feel like a native Californian. Bob and Gloria Gidner have staked out their homestead in Fairview, Pa., and have a happy family of three children, Gerry, John and Susan.

Have you been pacing the floor lately with your young baby? Have you mastered the knack of changing his or her diaper? Would you like the rest of your classmates to know that you too are a proud parent? One easy way to broadcast the news is via J. T. Weaver's monthly column. Granted I do miss a month or two once in a while, and the news is a bit dated at times but as the old saying goes, "we print all the news that's fit to print — eventually."

Now on to the plans for the reunion. Your Cambridge subcommittee, along with the area representatives, have been hard at work planning the various events for the weekend of June 11-12 and information concerning the festivities should have reached one and all many times over by the time this reaches print. If you are not receiving the publicity releases please contact the M.I.T. Class of '50 Reunion Committee, Room 20-D216, M.I.T., Cambridge, Mass. Your best buddy is planning to go so why not you, too? After all this talk about young children, the next logical question is: What do we do with the young ones while we go to the 5th reunion? If you haven't a willing Mother-in-law near by, this could pose quite a problem, so your committee has taken it into consideration and they are working up a deal. A quick rundown of the reunion shows registration at 12 noon Saturday, luncheon, games, gatherings, banquet, dancing, and slumberland. Breakfast, gatherings, games and clam bake on Sunday to round out the weekend.

Two of our classmates were victims of plane crashes last Fall. Lieutenant Frank Fulton was co-pilot of a flaming C-119 "flying boxcar" which crashed on Oct. 6, 1954 at Fort Bragg, N.C. The pilot and Frank died heroically when they made a last ditch effort to steer the plummeting air transport away from a barracks construction project at the Fort, thus saving the lives of scores of civilians at work there. According to witnesses, the giant airship, its left engine afire, veered from the project seconds before it dived into a paved road near by. Frank had been in the Air Force since leaving Tech and had met his wife, the former Rhoda Robertson of Scotland, last year while stationed in England.

On November 5, 1954, the front pages of most newspapers were filled with a story about the world's fastest seaplane that exploded in the air over San Diego harbor. How many of us read farther than the headlines and discovered that the pilot of the plane was none other than our own Chuck Richbourg. Chuck was killed when his jet sea-dart fighter splintered apart and burst into flames during a test run of the new plane. Newspapermen covering demonstrations of late model Navy planes watched in awe as the 700 mile an hour YF2Y-1 fighter skimmed off the water, climbed, circled and got into position for a high speed pass. Awe turned to horror when the jet came out of a shallow dive at high but not supersonic speed and abruptly began to shudder. For a split second it seemed to pitch longitudinally and a fraction later it was in flames. Chuck was an ex-Navy fighter pilot and he joined Convair as a test pilot in July 1951. A silent prayer for two great men. — JOHN T. WEAVER, *Secretary*, 68 Revere Street, Boston 14, Mass.

• 1951 •

It is my sad duty to inform you of the death of Richard M. Hayman who died on August 27, 1954. Dick was a Course VI graduate. No further details of his death are presently available.

Marital Events: John Dennis and Ursula Marie Reddy became Mr. and Mrs. in November at Dorchester. John is pres-

ently serving in the Army Medical Corps. George Dumas and Josephine Rings were wed in November at Canton, Mass. George is a staff engineer for Chrysler in Detroit. He also teaches at the Lawrence Institute of Technology Night School. Al Gallucci and Helen Riccio made their vows in November at Bridgeport, Conn. Al is president of the Grasso Construction Company. Chuck MacDonald joined the married ranks when he and Jeanne Harrison said "Yes" at Charlotte, N.C., in October.

John Paige and Dorothy Vetovich became engaged in December. John is presently employed as a chemist by the Naugatuck Chemical Company in Connecticut. Ralph Scheidenhelm and Audrey Ross announced their marital intentions in November. Vern Pfanku and Sylvia Haakon Moen were married on December 27 at Madison, Wis.

Al Gwynne presented your Secretary with a nice news note. He writes: "After graduation I worked for the Fluor Corporation in Kansas and California. In November, 1952, I returned to Tech to work for D.I.C. on a Navy research project. In addition, I have been taking one course per term and looking forward to the summer of 1955 at which time I will receive my master's degree. My first daughter was born in California in May, 1952, second daughter in Medford in October, 1953, and my son in Medford in September, 1954. Shery, Barbie, and Rickery are all healthy and frisky. Walt Davis is working for Warren Brothers Roads Company in Brockton. He has two daughters now and is a candidate for a son this spring. Mickey Alper is still here, working hard on his doctor's degree. Larry Kuszman expects to return to the States from Chile sometime this summer." Thanks, Al!

From the wild and woolly plains (mountains?) of Kansas, Fred Lehmann reports that he and Betty are enjoying the wide open spaces. Fred is busy at Procter and Gamble while Betty (the former Betty Ann Ferguson) is doing engineering work for Westinghouse. Fred is slowly but surely getting to be a "HiFier." Hank Marsh writes: "I was drafted in June and after spending the summer in Georgia, I was assigned to the Frankford Arsenal in Philadelphia. This worked out fine as far as distance to my and Carolyn's former homes. My current assignment is research and development work in Small Arms Ammunition. At the Army-Navy game we had a small M.I.T. reunion with Steve Chamberlin, Denny Spangler, Pete Plender, Dick Reuther, Hal Mackay, Bob Knopf, and myself gathered together."

From Merrie England Ray Gruwell sends a few words. First, Ray and Iris Stout were married at Guiborough, Yorkshire, in October. "I've been over here since March as an operating engineer for the Kellogg International Corporation, a subsidiary of the M. W. Kellogg Company of New York. From all indications, I will probably be here for a while. Give my regards to all the '51ers." And now to Brooklyn! Jerry Lyons reports that he completed his service engagement with the U.S. Navy in November and is employed at the Leviton Manufacturing

Company in New York. "During my tour of duty in the Pacific covering Japan and Formosa I ran into Bill Pinkham."

Next to Central America! Bill Rhodes reports: "I'm down in El Salvador now, living by the side of the Pan-American highway, about 30 kilometers west of the capital. I'm working with the American Friends Service Committee in rural community development work. It's summer down here now. The weather is fine and the volcano gives us a fireworks display at night." Thanks, men, for writing. Now I hope more '51ers will keep the ball rolling with a few notes of their doings.

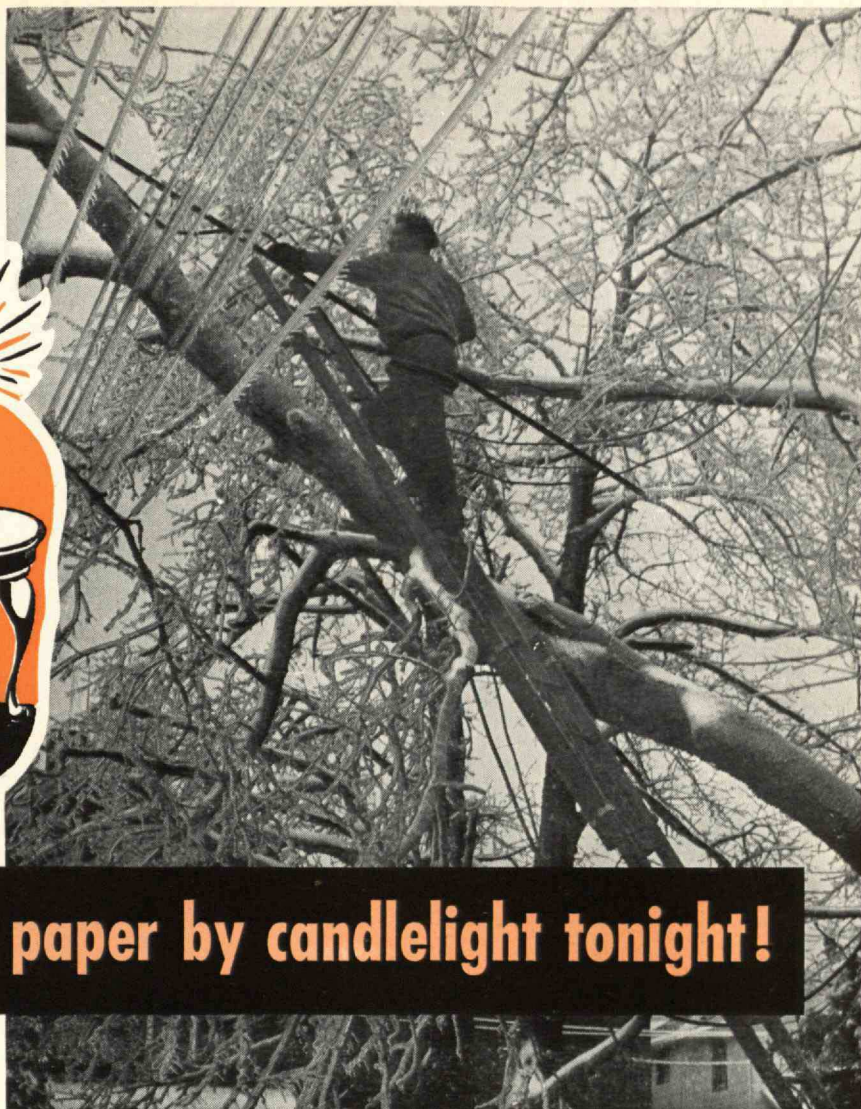
Jack Barcinski was appointed a technical sales representative in the Chicago District of Atlas Powder Company's chemicals department. Jack joined this company in 1951, had a military leave of absence, and returned to their employ in June, 1953. After working as an engineer for Wright Aeronautical at Wood Ridge, N.J., Dimitri Beurgin entered the U.S. Army and was assigned to Army Chemical Center near Baltimore, Md. Bill Clough joined the Metals Research Laboratories of the Electro Metallurgical Company at Niagara Falls, N.Y., as a senior research assistant in the Metals Research Group. Another new member for the Metals Research Laboratories is Art Geary who joined them in November as a senior research assistant. Harry W. Johnson received an appointment to instructor in chemistry at the University of California's new College of Letters and Science in Riverside, Calif. John Malloy presented a technical paper in December at the annual meeting of the American Institute of Chemical Engineers. The title of his paper was "Equivalent Isothermal Temperatures for Non-Isothermal Reactors." John is currently employed as a Chemical Engineer in the Research Department of the Standard Oil Company of Indiana.

Fred Radcliffe is one of the civil engineers working on the "Thruway" in New York State. He works for the DeFelice Construction Company, North Haven, Conn. Having sampled the driving delights of this up-to-date highway, your Secretary says "well done" to Fred and the many other "Thruway" workers. John Reed has hit the news twice. First, he did very well in the semifinals of the Ames Competition of law student in appellate moot court cases. John, a third year student at the Harvard Law School, has also been awarded a scholarship for the third time. Howard Simmon joined the research staff of the Du Pont Chemical Department at the Experimental Station at Wilmington, Del.

Before signing off, I wish to report we have started the ball rolling toward the goal of having the best reunion ever for you '51ers in 1956. More news on developments later. — STAN MARCEWICZ, *Secretary*, c/o The Lorraine, Route 2, Highland, N.Y.

• 1953 and 1954 •

Regretfully, The Review wishes to announce that Class Notes were received from the 1953 and 1954 Classes but could not be included because of lack of space. These notes with any additions will definitely appear in the April issue of The Review.



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